

DRAFT

**DRAFT Environmental Assessment/Initial Study
Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento
California**



April 2006

**Prepared by
U.S. Army Corps of Engineers & The Reclamation Board**



USACE



DRAFT FINDING OF NO SIGNIFICANT IMPACT

Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento California

I have reviewed and evaluated information presented in this environmental assessment/initial study (EA/IS); other documents; and the views of other agencies, organizations, and individuals concerning the proposed streambank protection work on eight erosion sites along the left bank of the Sacramento River in the vicinity of the Pocket area, Sacramento, California. This project will assist in the Federal Emergency Management Agency Certification of the 100-year floodplain in the Pocket area. The project extends along the Sacramento River from River Mile (RM) 49.6 (Garcia Bend Park) to RM 53.1 (Riverside Blvd. and 43rd Avenue).

Bank protection measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill on the revetment at elevations above water levels, (3) preserving existing in-stream wood material (IWM) and placement of additional IWM, and (4) planting pole and container plantings.

The possible consequences of conducting the work described in the EA/IS have been studied with consideration given to environmental, social, economic, and engineering feasibility. The effects and mitigation requirements have been thoroughly coordinated with Federal and State resource agencies. The proposed action would result in the temporary impact to riparian habitat and degradation of aquatic habitat values. Environmentally sensitive design and mitigation measures have been integrated into the project to fully compensate for these effects.

Based on my review, I have determined that the proposed bank protection work will result no significant effects on the environment, and that the mitigation measures agreed to in the EA/IS are sufficient to substantially reduce potentially significant effects.

Based on these considerations, I am convinced that there is no need to prepare a Environmental Impact Statement. The EA/IS and Finding of No Significant Impact provide adequate National Environmental Policy Act compliance for the proposed action.

Date

Ronald N. Light
Colonel, Corps of Engineers
District Engineer

PROPOSED MITIGATED NEGATIVE DECLARATION

PROJECT: SACRAMENTO RIVER BANK PROTECTION PROJECT, POCKET AREA EROSION SITES, SACRAMENTO CALIFORNIA

LEAD AGENCY: California State Reclamation Board

AVAILABILITY OF DOCUMENTS: The initial study for this proposed mitigated negative declaration is available for review at the Department of Water Resources, Division of Flood Management, 3310 El Camino Avenue, Sacramento, California 95825 and on the Department of Water Resources' website at: <http://www.recbd.ca.gov>.

Questions or comments regarding this proposed mitigated negative declaration and initial study may be addressed to:

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PROJECT DESCRIPTION:

The California Reclamation Board (Reclamation Board) in partnership with the U.S. Army Corps of Engineers under the Sacramento River Bank Protection Project is proposing to repair eight erosion sites along the left bank of the Sacramento River on the waterside of the Sacramento River Flood Control System levee at River Mile (RM) 49.6L, 49.9L, 50.2L, 50.4L, 50.8L, 51.5L, 52.4L and RM 53.1L. The combined repair lengths will total 4,436 linear feet and are within a 3.5 mile river reach bounded by Sutterville Road on the North and Freeport Boulevard on the south. The project area is located in Sacramento County in the southern portion of the City of Sacramento and adjacent to the Pocket Area neighborhood.

Four of the eight sites are included among 24 critical erosion sites in Governor's Schwarzenegger's February 24, 2006 Declaration of State of Emergency of California Levee System and March 7, 2006 Executive Order S-01-06. Repair of all 8 sites is necessary to allow certain levees of South Sacramento to receive Federal Emergency Management Authority (FEMA) certification for providing protection against a 1-in-100 year flood event. Encroachment of erosion into the banks at these sites requires immediate work to prevent levee failure.

Bank protection measures to be implemented at the eight erosion sites would include (1) protecting the toe of the bank with rock revetment both below and above the mean summer water level (MSWL) (2) placing one foot of soil fill on the revetment at elevations above the MSWL, (3) placing additional and preserving in-place existing in-stream wood material (IWM) clusters

for fish habitat, and (4) planting pole and container plants to stabilize the bank and to provide riparian habitat and potential shade.

Construction of bank protection would take up to 5 months. The Reclamation Board has directed the preparation of an initial study/proposed mitigated negative declaration (IS/MND) on the proposed project in accordance with the requirements of the California Environmental Quality Act (CEQA). An IS/MND describes the project and its potential impacts on the environment and concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to a level that is less than significant, by the adoption and implementation of specified mitigation measures.

FINDINGS:

An initial study has been prepared to assess the proposed project's potential effects on the environment and the significance of those effects. Based on the initial study, the Reclamation Board has determined that the proposed project would not have any significant effects on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- ▶ The project would result in no impacts to: agriculture resources, cultural resources, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, utilities and service systems.
 - Although there are no known cultural resources that might be disturbed, mitigation is included to address the potential for discovering archaeological or paleontological resources and/or human remains during the construction phase of the project.
 - Although the project would have no known significant impacts from hazardous materials, mitigation is included that requires a hazardous materials management plan to address unforeseen hazardous events.
- ▶ The project would result in less-than-significant impacts to: aesthetics and recreation.
- ▶ Mitigation would be implemented to reduce potentially significant impacts to less-than-significant levels for:

- Air Quality -short-term construction-related emissions
- Biological Resources - potential impacts on special-status species and their habitat
- Hydrology/Water quality -potential erosion during construction
- Noise - short-term construction-related noise

Mandatory Findings of Significance:

- ▶ The project will not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the

number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory

- ▶ The project will not have environmental effects that are individually limited, but cumulatively considerable.
- ▶ The project would not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.
- ▶ The project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- ▶ No substantial evidence exists that the project would have a negative or adverse effect on the environment.

PROPOSED MITIGATION MEASURES:

The following mitigation measures will be implemented by the Reclamation Board to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

- ▶ **Mitigation Measure 4.5.1- Air Quality.** Implement applicable measures to reduce short-term construction-generated emissions and if necessary, provide payment of an off-site air quality mitigation fee to fund regional air quality programs
- ▶ **Mitigation Measure 2.10 - Biological Resources - Off Site Mitigation.** For any mitigation not met using on-site measures, off Site mitigation will be implemented on the right bank of the American River 0.5 miles above the confluence with the Sacramento River for impact to riparian and aquatic habitat that benefit key special-status species including listed salmonid species and delta smelt, Valley Elderberry Longhorn Beetle and several other wildlife species.
- ▶ **Mitigation Measure 4.3.4 - Biological Resources – Elderberry.** Maintain a buffer around elderberry shrubs to avoid impact to the valley elderberry longhorn beetle or transplant elderberry shrubs if avoidance measures cannot be implemented.
- ▶ **Mitigation Measure 4.3.4 - Biological Resources - Swainson's Hawks and other birds.** Conduct pre-construction surveys for raptor nests and maintain a buffer to avoid any identified active nests during construction.
- ▶ **Mitigation Measure 4.3.4 - Biological Resources - Listed Fish Species.** Confined work within specified fish avoidance "work windows," between July 1 and November 30.

- ▶ **Mitigation Measure 4.3.4 - Biological Resources** - Listed Fish Species Habitat. Design sites to retain and enhance structural and hydraulic complexity of nearshore zones.
- ▶ **Mitigation Measure 4.10.2 – Cultural Resources.** Immediately halt construction activities if any cultural resources or human remains are discovered until an evaluation is made by a qualified archaeologist.
- ▶ **Mitigation Measure 4.4.4 - Hazardous Materials.** Prepare a hazardous materials management plan.
- ▶ **Mitigation Measure 4.6. 4 - Noise.** Limit construction to the hours of 7 a.m. to 6 p.m.
- ▶ **Mitigation Measure 4.4.4 - Water Quality – Turbidity.** Prepare a Storm Water Pollution Prevention Plan (SWPPP).
- ▶ **Mitigation Measure 4.7.4 – Traffic.** Prepare a traffic control management plan
- ▶ The project incorporates all applicable mitigation measures, as listed below and described in the initial study.
- ▶ This mitigated negative declaration reflects the independent judgment of the lead agency.

In accordance with Section 21082.1 of the California Environmental Quality Act, the Reclamation Board has independently reviewed and analyzed the initial study and proposed mitigated negative declaration for the proposed project and finds that the initial study and proposed mitigated negative declaration reflect the independent judgment of the Reclamation Board. The lead agency further finds that the project mitigation measures will be implemented as stated in the mitigated negative declaration.

I hereby approve this project:

Dated: _____

By: _____
Ben Carter
President

By: _____
Teri Rie
Secretary

Approved as to Legal Form
And Sufficiency

Scott Morgan
Counsel

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1.0 PURPOSE AND NEED FOR ACTION

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps) and the State of California Reclamation Board (RecBd), with assistance from the Sacramento Area Flood Control Agency (SAFCA), propose to implement bank protection measures to prevent ongoing streambank erosion and achieve Federal Emergency Management Agency (FEMA) certification of the 100-year flood plain along the Sacramento River.

These bank protection measures would be implemented at eight erosion sites located near the Pocket area (river miles [RM] 49.6 to 53.1 Left) in the city of Sacramento (Plate 1). The measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill on the revetment at elevations above the mean summer water level (MSWL), (3) placing and preserving existing in-stream wood material (IWM) clusters for aquatic habitat, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat.

1.2 Project Location

The project area extends along the Sacramento River from RM 49.6 to 53.1 near the Pocket area in the city of Sacramento. The eight erosion sites are located between Riverside Avenue near the intersection with 43rd Avenue, and Garcia Bend Park (Plates 1 and 2). The RM locations and lengths of the eight sites are listed in Table 1.

Table 1. Locations and Lengths of Erosion Sites¹

Work Site (RM)	Site Length (feet)
49.6	298
49.9 ¹	59 & 209
50.2	1,473
50.4 ¹	41 & 288
50.8	894
51.5	888
52.4	166
53.1	120
Total	4436

¹ Work site consists of two reaches

1.3 Background

The Pocket area is located between the east bank of the Sacramento River, and Interstate 5 bounded by Sutterville Road on the north and Freeport Boulevard to the south in the city of Sacramento. The area, which was once agricultural, has almost completely developed into

residential neighborhoods and commercial areas over the last 30 years. The Pocket area is among several remaining areas of Sacramento that does not have FEMA 100-year certification.

The original levees along the Sacramento River in this area were set back so that there was a minimum 50-foot bench between the existing bank and the waterside levee toe. Over the years, continual erosion of the existing river bank has threatened the stability of the levee in the Pocket area. Most of the erosion appears to be due to wave run-up from tidal and wind action, as well as recreational boat traffic during the summer months. Revetment has been placed along this area of levee over the years by private landowners, the Corps, historic reclamation districts and most recently by DWR's Maintenance Area 9.

The Corps, RecBd, and SAFCA, and their consultants have made several field assessments for the Pocket area over the last few years. Their final assessment has determined that erosion of the banks between elevations 2 feet and 8 feet National Geodetic Vertical Datum (NGVD) at these eight sites has undermined the bank so that it weakens and caves in during higher flow events. This project would protect these areas from further erosion while maintaining existing vegetation and IWM as much as possible. Completion of the work would also achieve FEMA certification for this area of Sacramento.

1.4 Project Authority

This project is a component of the Sacramento River Bank Protection Project (SRBPP), which was authorized by Congress under the Flood Control Act of 1960 (Public Law 86-645). Congress authorized the SRBPP in accordance with the recommendations of the Chief of Engineers in Senate Document No. 103, 86th Congress, Second Session, entitled "Sacramento River Flood Control Project, California," dated May 26, 1960. Authorization for environmental features associated with the project was provided in the Water Resources Development Act of 1990.

1.5 Purpose of the EA/IS

This Environmental Assessment/Initial Study (EA/IS) (1) tiers from the Programmatic Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) prepared for SRBPP in 1987, (2) describes the existing environmental resources in the project area, (3) evaluates the effects of the alternatives on those resources, and (4) if the effects are significant, determines the need for a Supplemental EIS/EIR. If a SEIS/SEIR is not required a Finding of No Significant Impact (FONSI) and Negative Declaration (NegDec) would fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), respectively.

1.6 Decisions that must be made

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed refinements qualify for a FONSI under NEPA or whether an EIS must be prepared. In addition, the Reclamation Board must decide if the proposed action qualifies for a Mitigated NegDec under CEQA or whether an EIR must be prepared.

2.0 ALTERNATIVES

2.1 No Action

Under this alternative, no action would be taken to halt erosion and protect the levee at the eight erosion sites. As such, the banks would continue to erode, increasing the risk of levee failure and subsequent flooding in the Pocket area. This erosion would continue to worsen through wave wash, floodflows, and human disturbance. Eventually, emergency repair measures would need to be implemented to protect the levee system from failing.

2.2 Alternative 1: Proposed Action

This alternative proposes to implement bank protection measures to prevent ongoing streambank erosion at RM's 49.6, 49.9, 50.2, 50.4, 50.8, 51.5, 52.4, and 53.1 along the Sacramento River. Overall project features; work at each erosion site; habitat disturbance; construction staging area; construction sequencing and equipment; haul routes, borrow areas, and traffic; maintenance activities and work windows; and construction and maintenance schedule are described below. This alternative would use the d50 riprap rock revetment with an average diameter of 10 inches.

2.3 Alternative 2

Alternative 2 would be the same as Alternative 1 except that 6 inch diameter round cobble revetment would be used for toe protection. The use of this cobble would increase the maintenance requirements of the site as compared to Alternative 1.

2.4 Overall Project Features

The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD over a total area of 375,290 square feet (8.62 acres), (2) placement of a 1-foot-thick layer of non-engineered fill at elevations varying from 5 to 11 feet NGVD on top of the rock revetment over an area of 176,500 square feet (4.05 acres), beginning above the MSWL (3) retention of existing or placement of new IWM for a total of 1,177 LF at elevations varying from 5 to 10 feet NGVD for aquatic habitat, and (4) planting of vegetation at elevations varying from 5 to 10 feet NGVD to provide bank stabilization and riparian habitat.

Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area would be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir (threaded) fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V

(measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

Existing living and dead IWM will be left in place and additional IWM would be placed along the sites at approximately 50- to 75-foot intervals to provide bank protection and aquatic habitat during winter and spring flows. This newly placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the sites starting at elevations varying from 8 to 11 feet NGVD. Large potted plants would and willow cuttings be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place, and all areas disturbed during construction that are above the MSWL would be protected with erosion control measures such as hydroseeding and plug plantings.

The overall project would alter approximately 4,440 feet of channel bank and contiguous channel bottom during construction, approximately 8.62 acres.

Table 2. Site Acreages for the Pocket Erosion Project

Site	Total Project Area (Acres)	Approx. Pre-Project Area above Water Line (Acres)	Approx. Pre-Project Area Below Water Line (Acres)	Post-Project Area above Water Line (Soil and Planting Area) (Acres)	Post-Project Area Below Water Line (Acres)
49.6	0.51	0.09	0.42	0.24	0.27
49.9	0.49	0.14	0.35	0.24	0.25
50.2	2.71	0.34	2.37	1.05	1.66
50.4	0.60	0.09	0.51	0.35	0.26
50.8	1.44	0.21	1.23	0.94	0.49
51.5	2.24	0.20	2.04	0.96	1.28
52.4	0.30	0.03	0.27	0.18	0.13
53.1	0.32	0.02	0.30	0.09	0.23
Total	8.62	1.12	7.50	4.04	4.58

2.5 Work at Each Erosion Site

This section provides specific details on the proposed work at each erosion site. Cross-sectional views of each site are shown on Plates 3-10.

River Mile 49.6

The bank protection measures at RM 49.6 would consist of (1) reinforcement of the bank toe with a total of 298 LF of rock revetment approximately 5 feet thick between the elevations of minus 13 and 10 feet NGVD over a total area of 22,350 square feet (0.51 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 10,500 square feet (0.24 acre), (3) planting of vegetation from an elevation of 8 feet to 11 feet NGVD to provide bank stabilization and

riparian habitat, and (4) retention of existing and placement of new IWM for a total of 57 LF at an elevation of 5 feet NGVD for aquatic habitat..

Approximately 4,500 cubic yards of rock revetment would be placed along the embankment and would extend up to 60 feet out from the riverbank. About 11,920 square feet (0.27 acre) of this rock-covered area would be below the mean summer water line. Approximately 800 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 14,900 square feet or 0.34 acre).

Riparian trees and shrubs would be planted along the site starting at 8 to 11 feet NGVD and extending to the top of the bank. Existing live and dead IWM would be retained along the work site to provide aquatic habitat during winter and spring flows. The newly placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place with carefully placed rock, and all areas disturbed during construction above the MSWL would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 49.9

The bank protection measures at RM 49.9 would consist of (1) reinforcement of the bank toe with a total of 268 LF of rock revetment approximately 5 feet thick between the elevations of minus 16 and 10 feet NGVD over a total area of 21,440 square feet (0.49 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 11,000 square feet (0.25 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placing new IWM for a total of 70 LF at an elevation of 5 feet NGVD for aquatic habitat .

Approximately 5,300 cubic yards of rock revetment would be placed along the embankment and would extend up to 60 feet out from the riverbank. About 10,988 square feet (0.25 acre) of this rock-covered area would be below the mean summer water line. Approximately 1,000 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the two work sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 13,400 square feet or 0.31 acre).

Riparian trees and shrubs would be planted along each of the two work sites starting at 8 to 11 feet NGVD and extending to the top of bank. Live and dead IWM already on site would be

added to with new IWM along the work site to provide and aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place, and all areas above the MSWL disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 50.2

The bank protection measures at RM 50.2 would consist of (1) reinforcement of the bank toe with a total of 1,473 LF of rock revetment approximately 5 feet thick between the elevations of minus 13 and 10 feet NGVD over a total area of 117,840 square feet (2.71 acres), (2) placement of a 1-foot-thick layer of non-engineered fill above MSWL varying from 5 to 11 feet NGVD on top of the rock revetment and covering an area of 55,000 square feet (1.26 acres), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing IWM and placement of additional IWM for a total of 309 LF of IWM at an elevation of 5 feet NGVD for aquatic habitat.

Approximately 25,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 50 feet out from the riverbank. About 72,177 square feet (1.66 acres) of this rock-covered area would be below the mean summer water line. Approximately 3,700 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 81,015 square feet or 1.86 acres).

Riparian trees and shrubs would be planted along the site starting at 8 to 11 feet NGVD and extending to the top of the bank. Live and dead IWM already on site would be added to with new IWM along the work site to provide aquatic habitat during winter and spring flows. The added IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by carefully placed rock, and all areas disturbed during construction above the MSWL would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 50.4

The bank protection measures at RM 50.4 would consist of (1) reinforcement of the bank toe with a total of 329 LF of rock revetment approximately 5 feet thick between the elevations of minus 8 and 10 feet NGVD over a total area of 26,320 square feet (0.60 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 12,000 square feet (0.27 acre), (3) planting

of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total of 95 LF at an elevation of 5 feet NGVD for aquatic habitat.

Approximately 6,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 40 feet out from the riverbank. About 11,186 square feet (0.257 acre) of this rock-covered area would be below the mean summer water line. Approximately 1,200 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the two work sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 NGVD (sloping area total 14,805 square feet or 0.34 acre).

Existing live and dead IWM would be added to with additionally placed IWM along the two work sites at to provide aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along each of the two work sites starting at elevations varying from 8 to 11 feet NGVD. Large potted plants would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place by careful rock placement, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 50.8

The bank protection measures at RM 50.8 would consist of (1) reinforcement of the bank toe with a total of 894 LF of rock revetment approximately 5 feet thick between the elevations of minus 5 and 10 feet NGVD over a total area of 62,580 square feet (1.44 acres), (2) placement of a 1-foot thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 36,000 square feet (1.04 acres), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total of 304 LF at an elevation of 5 feet NGVD for aquatic habitat .

Approximately 10,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 30 feet out from the riverbank. About 21,456 square feet (0.49 acre) of this rock-covered area would be below the mean summer water line. Approximately 3,300 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 31,290 square feet or 0.72 acre).

Existing live and dead IWM would be retained and added to with additionally placed IWM along the site and provide aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the site at elevations varying from 5 to 10 feet NGVD and extending to the top of the bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by careful rock placement, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 51.5

The bank protection measures at RM 51.5 would consist of (1) reinforcement of the bank toe with a total of 888 LF of rock revetment approximately 5 feet thick between the elevations of minus 18 and 10 feet NGVD over a total area of 97,680 square feet (2.24 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 40,000 square feet (0.92 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing IMW and placement of 231 LF of IWM at an elevation of 5 feet NGVD for aquatic habitat and bank stabilization.

Approximately 15,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 65 feet out from the riverbank. About 55,944 square feet (1.28 acres) of this rock-covered area would be below the mean summer water line. Approximately 3,200 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 66,600 square feet or 1.53 acres).

Existing live and dead IWM would be added to with additionally placed IWM, along the site at approximately 50- to 75-foot intervals to provide bank protection and aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the site at elevations varying from 5 to 10 feet NGVD and extending to the top of the bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by careful rock placement, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 52.4

The bank protection measures at RM 52.4 would consist of (1) reinforcement of the bank toe with a total of 166 LF of rock revetment approximately 5 feet thick between the elevations of

minus 7 and 10 feet NGVD over a total area of 13,280 square feet (0.30 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 7,000 square feet (0.16 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total of 63 LF at an elevation of 5 feet NGVD for aquatic habitat and bank stabilization.

Approximately 2,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 25 feet out from the riverbank. About 5,644 square feet (0.13 acre) of this rock-covered area would be below the mean summer water line. Approximately 600 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 7,470 square feet or 0.17 acre).

Existing live and dead IWM would be added to by placing additional IWM along the site to provide aquatic habitat during winter and spring flows. The added IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the site starting at elevations varying from 8 to 11 feet NGVD and extending to the top of the bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the site would be protected in place by careful placement of rock, and all areas disturbed during construction above the MSWL, would be treated with erosion control measures such as hydroseeding and plug plantings.

River Mile 53.1

The bank protection measures at RM 53.1 would consist of (1) reinforcement of the bank toe with a total of 120 LF of rock revetment approximately 5 feet thick between the elevations of minus 27 and 10 feet NGVD over a total area of 13,800 square feet (0.32 acre), (2) placement of a 1-foot-thick layer of non-engineered fill varying from 5 to 11 feet NGVD on top of the rock revetment above the MSWL and covering an area of 5,000 square feet (0.11 acre), (3) planting of vegetation from an elevation of 8 to 11 feet NGVD to provide bank stabilization and riparian habitat, and (4) retention of existing and placement of additional IWM for a total placement of 48 LF at an elevation of 5 feet NGVD for aquatic habitat.

Approximately 5,000 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 10,080 square feet (0.23 acre) of this rock-covered area would be below the mean summer water line. Approximately 300 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment above the MSWL and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water (before vegetation has established). Upon completion, the bank slopes at the site would be 3H:1V (measured from the

toe of the bank to an elevation of 10 NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area total 10,800 square feet or 0.25 acre).

Existing live and dead IWM would be added to by placing additional IWM along the site to provide aquatic habitat during winter and spring flows. The placed IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along each of the sites starting at elevations varying from 8 to 11 feet NGVD and extending to the top of bank. Large potted plants and willow cuttings would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place by careful rock placement and all areas disturbed during construction above the MSWL, would be treated with erosion control measures such as hydroseeding and plug plantings.

Table 3 shows the amount of IWM and fill to be used for each erosion site. The quantity of fill and IWM may vary slightly from estimated due to potential erosion occurring during the flood season prior to construction. Additionally, placement of quantities of IWM at an individual site may vary from what is described above due to safety concerns. Final placement locations shall be determined at the time of construction.

Table 3. Material Quantities for Pocket Bank Protection Sites

Site	Current IWM (Linear Feet)	Functioning IWM to Remain (Linear Feet)	IWM to be Placed (Linear Feet)	Rock Revetment (Cubic Yards)	Soil Placed (Cubic Yards)
49.6	125	63	57	4,500	800
49.9	78	38	70	5,300	1,000
50.2	560	280	309	25,000	3,700
50.4	72	36	95	6,000	1,200
50.8	116	54	304	10,000	3,300
51.5	240	124	231	15,000	3,200
52.4	5	3	63	2,000	600
53.1	0	0	48	5,000	300
Total	1196	597	1177	72,800	14,100

2.6 Habitat Disturbance

Construction would be conducted to minimize disturbance of existing vegetation and IWM at the sites. Trees and vegetation would be cleared only to allow construction equipment to access the site, and some pruning or trimming of tree limbs and shrubs would be necessary prior to placing fill material. The exact amount at each site cannot be specified until time of construction due to changing site conditions from the ongoing erosion. To the extent feasible, however, vegetation would not be removed, and existing IWM would be covered with rock, effectively anchoring the material in place.

There would be no grubbing or contouring of the sites. All fill materials would be placed on existing undisturbed ground with no excavation or movement of existing materials onsite. All

construction activities, including clearing, pruning, and trimming of vegetation, would be supervised by a qualified biologist to ensure that these activities have a minimal effect on natural resources. A total maximum of 700 linear feet of vegetation may need to be removed from the erosion sites if necessary.

2.7 Construction Staging Areas

Construction of all bank protection activities except planting and staging would be conducted on the waterside of the riverbank from a barge or on top of the rock placed during construction. The contractor would only use the top of the levee and adjacent waterside grassy area for staging of vehicles and plant materials and other associated construction equipment if necessary. If the grassy area is used, protective fencing will be installed to prevent vehicles from getting too close to the waterside edge of the existing berm. The contractor would access the eight erosion sites from the Sacramento River and minimize access from the landside to reduce the effects of noise and traffic on adjacent residential areas. Staging areas can be seen on Plate 2.

2.8 Construction Sequencing and Equipment

The contractor would primarily construct the bank protection sites from cranes mounted on barges in the Sacramento River. The contractor would first place rock revetment from the rock toe up to an elevation of 5 feet NGVD. While the rock is being placed, the additional IWM will be anchored under the riprap. Then the contractor would begin placing sandy soil into the void space between 5 and 10 feet NGVD. Once the contractor has completed the bench from 8 to 10 feet NGVD, a 1-foot-thick layer of soil would be placed over the bench area for planting medium. The contractor may choose to use excavators, loaders, and other construction equipment on the construction area once the rock revetment has reached 5 feet NGVD.

Once construction of the bench is completed, the contractor would begin placing fill materials, as well as installing the IWM and plantings on the sites. The contractor could then decide to place fill material along the entire length of the site and install the plantings, or they could decide to construct only a section at a time, depending on material and equipment availability, or feasibility of construction. Willow cuttings and grass will be installed after construction in the fall, whereas containerized plants will be installed the following spring following seasonal high water.

2.9 Haul Routes, Borrow Areas, and Traffic

Most construction equipment would access the site by barge from the Sacramento River. Some access of construction equipment onto the levee may be necessary by utilizing the main roads in the Pocket neighborhood. Construction vehicles would drive on Pocket Rd. and Riverside Blvd. from I-5 and enter the levee at Garcia Bend Park on the south or by Arabella Way (off Pocket Rd.) and Riverside Blvd. from 43rd Street on the north. These two entrance points contain existing paved ramps that lead to the top of the levee.

Construction materials including riprap would be hauled from a commercial or previously permitted quarry or borrow site located within 100 miles of the sites. Construction

personnel would make a total of 7 round trips to and from the quarry or borrow site each day. Construction signs would be posted along the haul routes within the Pocket neighborhood, and flaggers would be used, as necessary, to minimize traffic problems and ensure public safety near the construction sites.

2.10 Off Site Mitigation: Pocket Sites and RM 56.7 at American River RM 0.5

Off-site mitigation may be implemented on the right (north) bank of the American River 0.5 mile above the confluence with the Sacramento River. Plate 11 shows the conceptual design for the RM 0.5 site. Access to the site is through Discovery Park. The site length is approximately 1,000 feet, the width varies from 0 to 300 feet measured from the edge of the river, and the project footprint is approximately 4 acres. Construction activities would be initiated during 2006 and/or 2007 dependent on cultural resource studies, VELB transplant windows, and in-water work windows. This reach of the lower American River was substantially altered by the massive amounts of sediment deposited as a result of hydraulic mining in the upper watershed and overturning and redepositing of the riverbed by extensive dredge mining within the American River. In addition, the riverbed had been substantially lowered in the last 50 years as upstream dam construction has significantly reduced sediment input and has increased scour. The result is an elevated floodplain that has significantly altered the natural relationship between the river and the surrounding floodplain. On the elevated floodplain the desirable riparian communities are not reproducing and the floodplain is rarely available to fish as the riverbed has scoured deeper and deeper. In 2001 the proposed mitigation site was also subject to a high intensity wildfire that significantly altered the native riparian vegetation community. Much of the large cottonwood, elderberry, and other native vegetation were fire-killed. Subsequent natural recruitment was very limiting, and today the site is highly degraded and largely dominated by invasive forbs, annual grasses, trees, and shrubs such as Himalayan blackberry.

The purpose of this mitigation site is to mitigate any impacts on riparian and aquatic habitat that may be caused by this project or future flood control projects on the Sacramento and American River. This site will be assessed using the Standardized Assessment Methodology (SAM) model for its ability to generate mitigation credits. The objective of the design of this mitigation area is to restore natural habitats that will benefit key special-status species, including fish, VELB, and several other wildlife species. A primary design component is the creation of juvenile salmonid habitat by constructing a vegetated bench with a range of elevations that will be inundated by typical winter and spring river stages. The range of elevations is designed to provide shallow (1 to 3 feet of) inundation in the target seasons and to create several planting zones related to hydrologic characteristics. The planting zones will provide a mixture of vegetation types to protect against erosion and provide cover for salmonids.

The grading and planting plan is also designed to minimize predator fish species habitat and eliminate potential fish stranding in an existing closed depression in the terrace at the site. The project design is intended to be consistent with management objectives for Discovery Park, including those presented in the River Corridor Management Plan for the Lower American River. The design of the overall project requires some initial site preparation and transplanting of elderberry shrubs located on the elevated floodplain of the grading footprint. These shrubs

will be excavated to a designated elderberry transplant location adjacent to the excavation area, but within the overall project footprint. The elderberry shrubs found in the grading footprint are surrounded and overtopped by invasive ruderal vegetation (primarily Himalayan blackberry) that has hampered their development and reduced the overall ecological quality of the site. The transplant area is also dominated by nonnative vegetation that has prohibited the natural recruitment and development of native riparian species. The transplant area can accommodate shrubs transplanted from the grading footprint of the proposed mitigation site as well as transplanted shrubs that may be required for future projects, including bank protection projects. Up to 5 acres would be designated for elderberry shrub transplants and general restoration. Transplanting shrubs in this area will require initial site preparation involving the removal of nonnative vegetation such as Himalayan blackberry while retaining what native vegetation there is. These actions will result in substantial improvements in the quality and quantity of riparian and VELB habitat throughout the proposed mitigation area.

The Corps estimates that project activities may affect 272 stems of the blue elderberry shrub, habitat of the VELB at the Pocket Erosion sites and RM 0.5 mitigation site on the American River. The Corps estimates that 75% of the stems are between 1-3 inches and 25% are between 3-5 inches.

The Corps would delineate 5 acres in the current foot print or adjacent area for elderberry and riparian restoration. The Corps will overlap the area for VELB compensation to the extent possible with that of the compensation planned for listed fish species. The transplants from the approximately 5 acres would be placed in the project area as would the 612 elderberry seedlings. This area would not be used for transplants from other projects.

The Corps would compensate for these potential losses according 1999 Conservation Guidelines for the VELB. The Corps would compensate for 204 stems at a ratio of 2:1 and 68 stems would be compensated at a ratio of 3:1. Removing invasive species from the transplant site and new elderberry restoration site would improve habitat conditions. Restoration of the area affected by the 2001 fire would also occur through the project and active maintenance of the site. The mitigation project would return the site to higher functioning riparian habitat than exists currently. The predominant project feature is a large graded bench with an elevation range between 4.0 and 12 feet covering approximately a 2.0-acre area. The majority of this area is between elevation 5 and 9 feet. These elevations are designed to produce shallow inundation at average spring and winter river stages of 8 feet and 9.5 feet, respectively. The bench area grading includes two sloping depressions that are designed with inlets from the main channel to facilitate full drainage of the project site and reduce the risk of stranding fish during the transition to very low water river stages. Overall, the site will support a broad range of riparian habitat, providing a thick band of vegetation near the river and a less dense and varied palette over the rest of the project footprint. The design also includes the incorporation of IWM to provide enhanced fish cover along the bank and brush mattresses to control erosion primarily from wave wash. A distribution of relatively level benches at various elevations stepping at approximately 1-foot increments will provide shallow water for seasonally diverse salmonid rearing opportunities at target river stages.

A separate NEPA/CEQA document shall be prepared prior to the construction for the project located at RM 0.5 Left on the American River. Environmental effects of the project at 0.5 have not been fully identified at this time and require additional surveys and coordination prior to the determination of project's effect on the human environment. Additional regulatory approvals from the appropriate agencies will be sought during the design phase at RM 0.5.

2.11 Mitigation Monitoring Plan

The Corps shall, within 12 months of the onset of construction of the Pocket bank protection sites, submit a detailed, site-specific monitoring plan for the resource agencies to review. Once reviewed, this monitoring plan shall be incorporated into the above-referenced O&M manual and implemented at the Pocket bank protection sites. Monitoring is necessary to ensure that the vegetated benches/IWM structures are functioning as projected to the benefit of federally listed fish species. The Corps and local sponsor shall submit a yearly report of monitoring results at the Pocket bank protection sites to the resource agencies by December 31 of each year. Monitoring is to be conducted until such time as the projected benefits of mitigation actions to federally listed fish species can be either substantially confirmed or discounted.

The Corps shall also develop, with the assistance of the Inter-Agency Working Group (IWG) and the ultimate approval of the resource agencies, a broader fisheries and aquatic ecosystem monitoring plan for the SRBPP action area. Larger-scale aquatic monitoring is also necessary to ensure that the various experimental SRBPP on-site mitigation features are functioning in a manner that enhances habitat value and offsets adverse bank protection effects. Monitoring is also necessary to determine the adverse effects associated with the loss of river function and increased habitat fragmentation associated with the project. Monitoring will evaluate the effectiveness any restoration measures implemented to return natural fluvial function (i.e., setback levees, restoration of eroding banks, etc.). The results of large-scale monitoring will be used to develop future minimization measures and conservation ratios with respect to federally listed species and will help determine whether SRBPP mitigation features require long-term maintenance or must be modified to reduce unforeseen adverse impacts on listed species and the ecosystems in which they occur.

2.12 Maintenance Activities and Work Windows

The erosion repair sites would need limited maintenance over the life of the project. Anticipated maintenance activities during the initial establishment period, typically 3-5 years, would include removal of invasive vegetation determined to be detrimental to the success of the project, pruning and watering of planted vegetation to promote optimal growth, maintenance of beaver exclusion fencing, replacement vegetation planting, monitoring of navigational hazards, and placement of fill and rock revetment if the site is damaged during high flow events or vandalism. Once established, the riparian vegetation should be self-maintaining. Placement of the bank protection material would disturb no more than 300 feet a year during maintenance activities.

In coordination with Federal and State resource agencies, any in-water work needed for maintenance would be conducted during appropriate time periods to avoid adverse effects to fish.

The current acceptable in-water work “window” for listed salmonids is July 1 to October 30 in any year (Construction would begin in July only if approved by the USFWS which is dependent on the distribution of Delta smelt in June surveys). It is anticipated that no more than 600 cubic yards of material a year would need to be placed at the sites in order to provide sufficient protection. Should greater than 600 cubic yards be placed in any year, the operating and maintaining agency would obtain the necessary permits from regulatory agencies.

2.13 Construction and Maintenance Schedule

Placement of rock revetment, fill, and IWM would be completed during one construction season. Vegetation plantings would be installed and maintained during that same construction season and then maintained for an additional 3 years. In-water construction would be completed during the established special-status species work window of July 1 through October 30 (Construction would begin in July only if approved by the USFWS which is dependent on the distribution of Delta smelt in June surveys). The Corps has requested to the USFWS that the work window be extended through November 30 during the first year of construction. If construction is initiated during 2006, in-water construction would begin on approximately July 1. Maintenance activities may occur year round in the overbank and dry areas, but would avoid any elderberry shrubs by 100 feet or other distance coordinated with the U.S. Fish and Wildlife Service.

3.0 RESOURCES ELIMINATED FROM DETAILED ANALYSIS

3.1 Climate

This project would not result in any changes to climate; therefore, climate is not discussed in this document.

3.2 Land Use

This project would not result in any changes in land use; therefore, land use is not evaluated in detail in this document. Specifically, there would be no change to the adjacent land uses, including recreation, and the conversion of natural riparian bank to a riprap slope would not result in a change in land use because the project has been designed to promote the revegetation and maintain habitat values of the sites.

3.3 Socioeconomics and Environmental Justice

Since land use would not change, the socioeconomics of the project area are not expected to change. Marinas and other recreational values near the sites would not be affected. Also, there would be no substantial loss or addition of jobs or revenue as a result of the proposed project. In addition, there would be no effect on environmental justice because there are no minority or low-income groups in the project area.

3.4 Prime and Unique Farmland

Construction is not proposed on any land designated as prime or unique farmland. No agricultural lands would be taken out of production due to the proposed project.

3.5 Hazardous, Toxic, and Radiological Waste

Hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of endangering the environment (California Health and Safety Code Section 25260). Types of hazardous materials include petroleum hydrocarbons, pesticides, and volatile organic compounds (VOCs). In the Central Valley, most hazardous waste sites are associated with agricultural production activities and may include storage facilities and agricultural pits or ponds contaminated with fertilizers, pesticides, or herbicides.

There are no known hazardous, toxic, and radiological waste (HTRW) sites that would be affected by the proposed project. A literature review, interviews, and site survey revealed no known occurrences of HTRW onsite. Since the project would not involve any known HTRW sites, HTRW has been eliminated from further consideration.

The possibility exists that fuels, lubricants, and other construction materials could enter the human environment during construction. As a result, the construction contractor would be required to prepare a hazardous materials control and response plan prior to construction.

3.6 Soils and Geomorphology

The Sacramento Valley is underlain by marine sedimentary rocks overlain by recent alluvial deposits, and to a lesser extent some volcanic rocks. The levees and river sediments with the project site are composed of Quaternary alluvium deposits comprising of loose to medium dense, unweathered gravel, sand, silt and clay. These sediments, which are estimated to have been deposited 200 to 10,000 years before present formed levees and floodplains along the Sacramento River.

The river channel at the project site is approximately 750 feet wide between shorelines. The channel invert is -24 feet below mean sea level. Large chunks of concrete rubble on the levee slopes were placed over time as ad hoc riprap. However, it is currently being undercut and masks the true level of scour at the site (U.S. Army Corps of Engineers 2004).

Since there is no removal of existing cobbles, riprap, and concrete chunks from the existing levee, construction related effects to the bank and underlying soils will be less than significant. The addition of a 1-foot soil layer would actually improve conditions by allowing planting benches to establish vegetation and secure the shore preventing further erosion.

4.0 RESOURCES ANALYZED IN DETAIL FOR POTENTIAL PROJECT EFFECTS

4.1 Vegetation and Wildlife

Vegetation, habitat, and wildlife mapping surveys were conducted in 2004 and 2005 utilizing both aerial photos and ground truthing techniques to determine locations that may be affected by construction and maintenance activities. The Corps is currently awaiting a draft Fish and Wildlife Coordination Act Report (CAR) from the Sacramento USFWS office and the FONSI will not be signed until the final CAR is received.

4.1.1 Existing Conditions

The Pocket Area project site contains four different land cover types. These include riparian forest, scrub/shrub, ruderal herbaceous, and open water (i.e., Sacramento River) (Table 4). Each of these land cover types is described briefly below.

Table 4. Land Cover Types at each Pocket Area Erosion Site

River Mile	Land Cover Type (acreage)			
	Riparian Forest	Riparian Scrub/shrub	Ruderal Herbaceous	Open Water
49.6	0.47	0.08	0.36	0.42
49.9	0.50	N/A	0.36	0.35
50.2	1.17	0.18	2.37	2.37
50.4	0.51	N/A	0.22	0.51
50.8	0.94	0.11	0.42	1.23
51.5	1.27	0.02	0.82	2.04
52.4	0.62	N/A	0.12	0.27
53.1	0.30	N/A	0.20	0.3
Total	5.8	0.4	4.9	7.5

Tree and vegetation surveys were performed in December 2004 and January 2005. The locations of elderberry trees/shrubs are shown in Plate 2. Trees were defined as all woody vegetation with a diameter-at-breast-height (dbh) of 4-inches or greater. Each tree was labeled with an aluminum tree tag with an individual tree number corresponding with each erosion site. The tags were placed approximately 4.5 feet above the ground. A survey crew from the Corps recorded the exact location and elevation of each tree on the waterside of the levee in September and December 2004, and January 2005. The tree survey included identifying the tree species, measuring the height, measuring dbh, determining the root status, and assessing the general condition of each tree.

Riparian Forest Habitat

Riparian forest and scrub/shrub vegetation within the Pocket area is composed of mature native and nonnative trees and shrubs occurring in a narrow band along the river's edge and on the levee slope. Along a majority of the erosion sites, trees and shrubs grow interspersed among each other with heights ranging from a few feet above ground to almost 100-feet over the shoreline. The riparian habitat in the project area is classified as great valley riparian forest (Holland, 1986). There are approximately 5.8 acres of riparian forest within the limits of work.

The taller riparian forest vegetation provides overhead and instream shaded riverine aquatic (SRA) cover habitat for aquatic species. SRA cover is an important component for fish habitat. Within the limit of work for the Pocket Area erosion sites riparian vegetation provides overhead SRA cover on approximately 4,836 linear feet (64%) of the low-flow summer shoreline. The riparian forest has a tall overstory of deciduous broadleaf trees, primarily cottonwood (*Populus fremontii*), willows (*Salix* spp.) and valley oak (*Quercus lobata*). Other native riparian forest species include box elder (*Acer negundo*), California black walnut (*Juglans hindsii*), western sycamore (*Platanus racemosa*), California laurel (*Umbellularia californica*), and Oregon ash (*Fraxinus latifolia*). The nonnative riparian forest species that contribute to the riparian forest overstory include English elm (*Ulmus minor*) and black locust (*Robinia pseudoacacia*).

Riparian Scrub/Shrub Habitat

The shorter riparian scrub/shrub community occurs in small, disjunctive patches within each Pocket Area erosion site, usually as thickets of intertwined vegetation below the forest canopy. Riparian scrub/shrub vegetation primarily occurs at the low and mid-bank landscape position. The riparian scrub/shrub cover type consists of riparian tree species that are less than 20 feet in height. Species occurring in the riparian scrub/shrub community include cottonwood, willow, elderberry (*Sambucus mexicana*), Himalayan blackberry (*Rubus discolor*), wild grape (*Vitis californica*), and poison oak (*Toxicodendron diversilobum*). There is approximately 0.4 acre of riparian scrub/shrub within the limits of work.

The habitat values for the riparian forest and scrub/shrub are significant, however they provide less habitat value than would be expected if the riparian corridor were wider with a more complex vegetation structure. This is the result of the linear nature of the erosion sites, the narrow width of the riparian corridor, and the predominance of the ruderal herbaceous understory. The riparian forest provides important nesting, cover, and foraging habitat for a diverse group of wildlife species. The riparian trees provide suitable nesting and roosting habitat for raptors and numerous songbirds. Several migratory birds also use the riparian canopy for foraging and cover while moving along their migration route. Although the scrub/shrub understory does not provide dense cover for mammals, small mammals such as raccoon, striped skunk and Virginia opossum are expected to occur at the project site.

The riparian forest and scrub/shrub community in the Pocket area is also subject to human disturbance from pedestrians and bicyclists who frequent the paved and gravel trail on the levee crown. Many local residents utilize the entire levee for a variety of activities such as

jogging, bicycling, walking dogs, horseback riding, fishing, and swimming. This could result in disturbance to nesting and foraging wildlife.

Ruderal Herbaceous

In some locations the riparian scrub/shrub understory is primarily dominated by ruderal herbaceous vegetation, including annual grasses such as brome grasses (*Bromus* spp.), ryegrass (*Lolium perenne*), wild oat (*Avena fatua*) and forbs such as horsetail (*Equisetum hymela*), sedges (*Carex* spp.), rushes (*Juncus* spp.), filaree (*Erodium botrys*), wild radish (*Raphanus raphanistrum*), and Bermuda buttercup (*Oxalis pes-carpae*). The dominant weedy species include wild mustard (*Brassica* spp.), bristly oxtongue (*Picris echioides*) milkthistle (*Silybum marianum*), and prickly thistles (*Cirsium* spp.) The ruderal herbaceous community, as a stand alone land cover type, occurs on the waterside of the levee within gaps in the riparian forest canopy and scrub/shrub communities. There are approximately 4.9 acres of ruderal herbaceous land cover within the limits of work.

Open Water

The Sacramento River is located on the west side of the project site. The riparian forest and scrub/shrub vegetation at the outboard toe of the slope are located at the approximate summer water surface elevation. No wetlands occur in the project area. The amount of open water riverine habitat within the limits of work is 5.0 acres. This was determined by multiplying the length of each site by an average of 50 feet out into the middle of the river.

In-stream Woody Material (IWM)

A survey to locate IWM was conducted from December 6 to 23, 2004. The purpose of the survey was to record locations of woody debris that were submerged beneath the water as well above the waterline up to the 5-foot contour at mean summer water (MSW). Any woody debris (branches, logs, fallen trees, roots, etc.) that was in close proximity and extending into the water was measured and recorded. Table 5 shows the length of IWM recorded for each erosion site in the Pocket area. Table 5. shows the total IWM in the project area, not the total IWM affected which is shown in Table 3.

Table 5. Length of IWM measured at Pocket Erosion Sites

Pocket Erosion Site	Length (ft)
River Mile 49.6	262
River Mile 49.9	290
River Mile 50.2	882
River Mile 50.4	56
River Mile 50.8	314
River Mile 51.5	314

A boat was used to access the IWM along the banks. At each location of IWM, both ends of woody material were marked using a Trimble GeoTracker3 global positioning system (GPS) unit. The following was recorded for each area of woody debris: (1) length; (2) width; (3) distance from shoreline protruding out into the river; (4) diameter of width (often given as a range); (5) type (e.g., simple log, rootwad); (6) orientation to the bank (i.e., parallel or perpendicular); and (7) structural complexity. Digital photographs were taken at representative sites. Photographs were also taken of live trees and shrubs that were common but not recorded.

4.1.2 Environmental Effects

Significance Criteria

Effects on vegetation and wildlife were considered significant if the project would:

- Interfere with the movement of any resident or migratory wildlife species. Result in substantial loss, degradation, or fragmentation of any natural vegetation communities and wildlife habitat.

4.1.2.1 Alternative 1: Proposed Action

Approximately 8.62 acres of the project area (1.12 acres above mean summer water levels and 7.5 acres below mean summer water levels) will be directly affected (i.e., covered with rock revetment and soil) by construction activities at the Pocket erosion sites. This disturbance would include increased noise levels from generators, staging areas, vehicles, and river barges. Temporary displacement of local wildlife due to increased human presence is likely to occur during construction activities. There would be no grubbing or contouring of the sites. All fill materials would be placed on existing undisturbed ground with no excavation or movement of existing materials onsite. Some trimming or pruning of trees and shrubs may be necessary in order to access each erosion site and conduct work. A qualified biologist will be on site monitoring to ensure these activities have a minimal effect on natural resources. A total maximum of 700 linear feet of vegetation may need to be removed from the sites; however the exact amount at each site cannot be specified until time of construction due to changing site conditions from the ongoing erosion. Existing IWM would remain in the river and be covered with rock, effectively anchoring the material in place. The effects on ruderal herbaceous vegetation would occur due to the placement of earthen fill, rock revetment, and construction equipment placed or driven on the levee slope.

Heritage trees would not likely be affected by construction unless pruning is unavoidable in order to place fill around the root crowns to protect their roots from further erosion and root loss. The effects to vegetation and wildlife are temporary and will be less than significant once the mitigation measures as described below are implemented.

4.1.2.2 Alternative 2

Alternative 2 would have the same effects on vegetation and wildlife as Alternative 1 listed above.

4.1.3 Mitigation

The implementation of Alternative 1 would include the offsite mitigation area, which would fully offset onsite effects to vegetation. Alternative 1 would also implement a portion of the necessary mitigation onsite, and would incorporate the offsite mitigation area to the extent necessary to fully mitigate onsite effects to vegetation. Therefore, no mitigation beyond what is incorporated into the project description is required for effects to vegetation and wildlife.

4.2 Fish

This section describes the non-special-status fish resources and habitats present at the project site. Special-status fish species are discussed in this section; however, a detailed analysis is provided in the Special-Status Species section (Section 4.3).

4.2.1 Existing Conditions

Non-listed species that occur within Central Valley streams and rivers, including the project site include Sacramento splittail, striped bass, American shad, largemouth bass, and several species of minnows, sunfish, and catfish.

Factors affecting abundance for common species are similar to those affecting special-status species. These factors are discussed in detail in the Special-Status Species Section 4.3. The discussion of effects to special-status species resulting from changes in these factors adequately addresses any impacts to common species. However, effects to common species as a result of changes in these factors are not considered significant because they are not of special-status.

4.2.2 Environmental Effects

Significance Criteria

Effects on fisheries would be considered significant if construction or operation of the project would:

- Substantially interfere with the movement of any resident or migratory fish.
- Substantially diminish habitat for fish or result in displacement of spawning fish such that year-class strength is substantially reduced.
- Involve production and discharge of materials that pose a hazard to fish.

4.2.2.1 Alternative 1: Proposed Action

The Sacramento River channel and bank would be affected by construction of the bank protection. Construction would require one season (July 1 to November 30) and would include placement of new riprap (4,436 LF approximately 5 feet thick), non-engineered fill (1 foot thick) on top of the rock, instream woody material (330 LF), and planting riparian vegetation at various elevations along the bank. The overall project would disturb approximately 4,436 feet of channel bank and contiguous channel bottom during construction. About 5.0 acres of open water habitat would be affected during construction.

Short-term increases in turbidity and suspended sediment may disrupt feeding activities of common fish species or result in temporary displacement from preferred habitats. High concentrations of suspended sediment can also bury stream substrates that provide habitat for aquatic invertebrates, an important food source for green sturgeon. Consequently, growth rates of fish could be reduced if suspended sediment and turbidity levels substantially exceeded ambient levels for prolonged periods.

Toxic substances used at construction sites, including gasoline, lubricants, and other petroleum-based products could enter the Sacramento River as a result of spills or leakage from machinery or storage containers. These substances can kill aquatic organisms through exposure to lethal concentrations or exposure to nonlethal levels that cause physiological stress and increased susceptibility to other sources of mortality. Petroleum products also tend to form oily films on the water surface that can reduce dissolved oxygen levels available to aquatic organisms. The effect on fish will be less than significant once the mitigation measures as described below are implemented.

4.2.2.2 Alternative 2

Alternative 2 would have the same effects on fisheries as Alternative 1 listed above.

4.2.3 Mitigation

The Corps will require the contractor to submit to the Regional Water Quality Control Board (RWQCB) a notice of intent to discharge stormwater before construction activities begin and will develop and implement a storm water pollution prevention plan (SWPPP) as required by the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. The Corps will prepare a SWPPP that identifies best management practices (BMPs) for discharges. The SWPPP will include an erosion control and restoration plan, a water quality monitoring plan, a hazardous materials management plan, and post-construction BMPs. The BMPs will be maintained until all areas disturbed during construction have been adequately revegetated and stabilized.

The specific BMPs that will be incorporated into the SWPPP will be determined during the final stages of project design. However, the SWPPP is likely to include one or more of the following standard practices, which are commonly used during the construction and postconstruction phases of levee improvement projects:

- Conduct earthwork during the dry season (July 1-November 30)
- Stage construction equipment and materials on the landside of the subject levee reaches. To the extent possible, stage equipment and materials in areas that have already been disturbed.
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
- Stockpile soil and grading spoils on the landside of the subject levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.
- Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.
- Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters. Implement a spill prevention and control plan that specifies measures that will be used to prevent, control, and clean up hazardous material spills.
- Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials may include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, may be installed as needed to stabilize disturbed areas until vegetation becomes established.
- Implementation of the BMPs specified in the erosion control plan and SWPPP would substantially reduce the potential for accelerated erosion and sedimentation to occur as a result of construction-related ground and vegetation disturbance.

4.3 Special-Status Species

This section describes the special-status species, specifically federal and state listed species and candidate species, which may be present or have the potential to occur at the project site.

4.3.1 Existing Conditions

Special-status species that have the potential to occur in the vicinity of the project area were determined through a review of various sources including a USFWS species list (Updated February 1, 2006, Appendix A) and a review of the California Natural Diversity Database (CNDDB, Appendix B). Those species that are likely to occur within the vicinity of the project area are further evaluated in the following sections.

Ten special-status wildlife species occur or have the potential to occur in the project area. These species include: valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), Central Valley steelhead (*Oncorhynchus mykiss*), Sacramento River winter-run Chinook salmon (*O. tshawytscha*), Central Valley spring-run Chinook salmon

(*O. tshawytscha*), delta smelt (*Hypomesus transpacificus*), green sturgeon (*Acipenser medirostris*), and late fall/fall-run Chinook salmon (*O. tshawytscha*).

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is federally listed as threatened. The USFWS has designated critical habitat for the valley elderberry longhorn beetle along the American River Parkway and an area within the Sacramento metropolitan area (54 FR 48229). The project site does not fall within the two areas designated as critical habitat.

A California endemic species, the valley elderberry longhorn beetle is found in scattered populations throughout its range. The species' range includes most of the California Central Valley (Barr, 1991). The adults feed exclusively on elderberry (*Sambucus mexicanus*) foliage and are active from early March through early June. The beetles mate in May and females lay eggs on living elderberry shrubs. Larvae bore through the stems of the shrubs to create an opening in the stem within which they pupate. After metamorphosing into an adult, the beetle chews a circular exit hole through which it emerges (Barr 1991).

Elderberry shrub surveys were performed by the Corps at the Pocket area erosion sites in September and December 2004 and January 2005. These surveys were conducted in accordance with USFWS valley elderberry longhorn beetle conservation guidelines (U.S. Fish and Wildlife Service 1999). Elderberry shrubs (VELB) were identified by walking up river along the levee starting from Garcia Bend Boat Launch Marina, (150 feet downstream from RM 49.6) and continuing to about 200 feet upriver from the upstream limit of RM 53.1. Both sides of the levee were surveyed for this entire length. A total of 29 shrubs were found; 26 on the landside of the levee and 3 on the waterside of the levee (Table 6). All of these shrubs have stems greater than 1-inch in diameter and therefore provide habitat for valley elderberry longhorn beetle. Exit holes were observed on all but 4 shrubs. One elderberry shrub is located within the project construction boundaries, at the RM 50.8 site (Plate 2). Fifteen other elderberry shrubs are located within 100 feet of the construction boundaries, and 13 shrubs are located between sites along the levee, but more than 100 feet from any individual erosion site.

Additionally, approximately 26 elderberry shrubs (with 227 stems) are located within the project footprint at the lower American River RM 0.5 mitigation site. Approximately 40 shrubs (with 303 stems) are located within 100 feet of this footprint.

Table 6. Elderberry Shrub Survey Results of the Pocket Area

Elderberry Shrub Number	Shrub Associated with Site	Number of Stems Greater than 1-inch in Diameter, by Stem Diameter Category			Exit Hole Information		Shrub located in Riparian Habitat?
		Quantity of Stems 1–3 inches	Quantity of Stems 3–5 inches	Quantity of Stems >5 inches	Exit Holes Present?	Diameter of Stem on Which Exit Hole Occurs	
VELB01	49.6 (south of site)	12	2	3	Yes	3-5 inches	Yes
VELB02	n/a	0	0	2	Yes	>5 inches	No
VELB03	n/a	1	1	2	Yes	All diameters	No
VELB04	n/a	2	0	0	No	n/a	No
VELB05	n/a	0	1	2	Yes	3-5 inches and >5 inches	No
VELB06	n/a	2	1	1	Yes	All diameters	No
VELB07	n/a	1	0	2	Yes	>5 inches	No
VELB08	n/a	3	1	0	No	n/a	No
VELB09	n/a	14	2	0	Yes	1-3 inches and 3-5 inches	Yes
VELB10	n/a	1	1	2	Yes	All diameters	No
VELB11	n/a	0	0	1	Yes	>5 inches	No
VELB12	n/a	3	2	5	Yes	3-5 inches and >5 inches	No
VELB13	n/a	0	1	0	No	n/a	No
VELB14	50.4 (east of site)	5	3	0	Yes	3-5 inches	No
VELB15	50.4 (east of site)	0	1	0	Yes	3-5 inches	No
VELB16	50.4 (east of site)	0	0	1	Yes	>5 inches	No
VELB17	50.4 (east of site)	0	1	0	Yes	3-5 inches	No
VELB18	50.4 (east of site)	0	0	2	Yes	>5 inches	No
VELB19	50.4 (east of site)	2	0	1	Yes	>5 inches	No
VELB20	50.4 (east of site)	4	0	0	No	n/a	No
VELB21	50.4 (east of site)	3	1	0	Yes	3-5 inches	No

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Elderberry Shrub Number	Shrub Associated with Site	Number of Stems Greater than 1-inch in Diameter, by Stem Diameter Category			Exit Hole Information		Shrub located in Riparian Habitat?
		Quantity of Stems 1–3 inches	Quantity of Stems 3–5 inches	Quantity of Stems >5 inches	Exit Holes Present?	Diameter of Stem on Which Exit Hole Occurs	
VELB22	50.4 (east of site)	3	1	0	Yes	1-3 inches and 3-5 inches	No
VELB23	50.4 (east of site)	3	0	0	Yes	1-3 inches	No
VELB24	50.8 (east of site)	0	0	3	Yes	>5 inches	No
VELB25	50.8 (east of site)	1	1	1	Yes	All diameters	No
VELB26	50.8 (east of site)	1	1	1	Yes	All diameters	No
VELB27	50.8 (east of site)	3	0	0	Yes	1-3 inches	No
VELB28	50.8	1	1	1	Yes	All diameters	Yes
VELB29	n/a	15	0	8	Yes	>5 inches	No

Swainson's Hawk

The Swainson's hawk is state-listed as threatened and federally identified as a species of concern. The mature riparian vegetation in the Pocket Area provides suitable nesting; however, the riparian habitat in the project area is narrow and subject to human disturbance (i.e., pedestrian and levee maintenance traffic). Swainson's hawk may use any of the trees in the project area for roosting. No foraging habitat exists in the project area or on the east side of the river; however, suitable foraging habitat does exist on the west side of the river.

Cooper's Hawk

The Cooper's hawk is federally listed as a Species of Concern. The hawk breeds throughout most of California in a variety of woodland habitats, including riparian and oak woodlands (Harris 1991). Cooper's hawk are known to be permanent residents in the project vicinity. This species is also expected to occur as a transient and winter resident in the study area.

Although Cooper's hawks have not been recorded at the project site, the project site provides suitable habitat for this species. A CNDDDB records search did not identify any occurrences of Cooper's hawk in the study area (California Natural Diversity February 2004). Cooper's hawk has been observed in the residential area to the east of the project site (USFWS observations). The mature riparian vegetation provides suitable nesting; however riparian habitat in the project area is narrow and subject to human disturbance (i.e., pedestrian and levee maintenance traffic). Cooper's hawk may use any of the trees in the project area for roosting.

White-tailed Kite

The white-tailed kite is state and federally identified as a species of concern. White-tailed kites have steadily decreased throughout much of California since the late 1970s. Declines have been especially evident in southern California (Garrett and Dunn 1981), along the south coast (Marantz 1986) and in the San Joaquin Valley (Small 1994). Local populations appear to still be relatively healthy along the north and east San Francisco Bay and in the Sacramento–San Joaquin Delta.

White-tailed kites were not observed during the field survey and no nests or nest-building activities were observed in 2005. There are no CNDDDB occurrences of white-tailed kite for the project site (California Natural Diversity Database 2004). White-tailed kites have been observed downstream of the project site and in the residential area to the east of the project site (Jones & Stokes field observation). The mature riparian vegetation provides suitable nesting; however riparian habitat in the project area is narrow and subject to human disturbance (i.e., pedestrian and railroad traffic). White-tailed kite may use any of the trees in the project area for roosting. No foraging habitat exists in the project area or on the east side of the river; however suitable foraging habitat does exist on the west side of the river.

Chinook Salmon

Sacramento River winter-run chinook salmon are listed under both the ESA and CESA as endangered (59 FR 440, January 4, 1992). Central Valley spring-run Chinook salmon have been listed under the ESA and CESA as threatened (64 FR 50393, September 16, 1999). Central Valley fall/late fall-run Chinook salmon are identified as a candidate species under the ESA (64 FR 50393, September 16, 1999). Critical habitat was designated for Sacramento River winter-run Chinook salmon, and does encompass the project area.

Chinook salmon occur at the project site, either as adults migrating upstream to their spawning habitat, or as juveniles, rearing and migrating towards the ocean. Juvenile Chinook salmon tend to utilize bank habitat more frequently than the main channel, as it provides increased protection, shade, and food.

Central Valley Steelhead

Central Valley steelhead were listed under the ESA as a threatened species (63 FR 13347, March 19, 1998), and have been identified under CESA as a species of special concern. Central Valley Steelhead occurs at the project site, either as adults migrating upstream to their spawning habitat, or as juveniles, rearing and migrating towards the ocean. Juvenile steelhead tend to utilize bank habitat more frequently than the main channel, as it provides increased protection, shade, and food.

Delta Smelt

Delta smelt are listed under both the ESA and CESA as a threatened species (58 FR 12854, March 5, 1993). Critical habitat was designated and does include the project area. Estuarine rearing habitat for juvenile and adult delta smelt is typically found in the waters of the lower Delta and Suisun Bay where salinity is between 2 and 7 ppt. Delta smelt tolerate 0-ppt to 19-ppt salinity. They typically occupy open shallow waters but also occur in the main channel in the region where fresh water and brackish water mix. The zone may be hydraulically conducive to their ability to maintain position and metabolic efficiency (Moyle 2002).

The Sacramento River provides a migration pathway between freshwater and ocean habitats for adult and juvenile steelhead and all runs of Chinook salmon. Migration habitat conditions include streamflows that provide suitable water velocities and depths that provide successful passage. Flows in the Sacramento River provide the necessary depth, velocity, and suitable water temperature. Larval and early juvenile delta smelt are transported by currents that flow downstream into the upper end of the mixing zone of estuary where incoming saltwater mixes with out-flowing freshwater (Moyle et al. 1992). Reduced flow may adversely affect transport of larvae and juveniles to rearing habitat.

4.3.2 Environmental Effects

Significance Criteria.

Effects on special status species would be considered significant if construction or operation of the project would:

- Adversely affect critical habitat
- Result in an unmitigated take of a special status species
- Adversely affect a special status species

4.3.2.1 Alternative 1: Proposed Action

The proposed action at the Pocket erosion control sites is likely to affect, likely to adversely affect the following listed species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, valley elderberry longhorn beetle, and green sturgeon. Project effects also include alteration of the designated critical habitat of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

Construction effects may include localized disturbance or displacement of adult and juvenile Delta smelt, Chinook salmon, steelhead, and sturgeon from noise, suspended sediment, and turbidity generated during in-water construction activities. The potential also exists for injury or mortality of juvenile salmonids and other fish species that may not be able to readily move away from channel or nearshore areas directly affected by construction activities. The potential for adverse effects will be minimized by restricting in-water activities to the period July 1-November 30 and implementing the proposed minimization and avoidance measures for each species.

Long-term effects of the project on the habitat of listed fish species include alteration of river hydraulics, instream and overhead cover, and substrate conditions along the seasonal low- and high-flow shorelines of the project sites. Implementation of the project would result in temporary losses of riparian vegetation and permanent losses of IWM (an assumed 50% reduction) along the summer-fall and winter-spring shorelines. These cover losses will occur concurrently with the construction of a soil-covered vegetated bench that will increase the availability of shallow-water habitat for juvenile salmonids during the primary periods of occurrence in the project area (fall, winter, and spring high-flow periods). Cover losses will be offset to some extent by the placement of additional IWM on the bench. Over time, the establishment and growth of riparian vegetation on the bench is expected to increase habitat values by increasing the extent of instream and overhead cover available to juvenile salmonids under average winter and spring flows. In contrast, habitat values during periods of low juvenile abundance (early fall prior to the initial seasonal increase in flow and reduction in water temperature in the lower Sacramento River) are not expected to recover because of the permanent loss of shallow-water habitat (unvegetated), net loss of IWM, and installation of rock revetment along the summer-fall shoreline (Jones and Stokes 2006).

At most sites, the project would result in long-term gains in habitat values for Delta smelt spawning and incubation life stages (adults, eggs, and larvae). These gains reflect the positive response of these life stages to increases in the availability of shallow water, flooded vegetation, and IWM on the constructed bench during winter and spring flows.

No changes would occur in the dominant substrate type (fine sediment). In contrast, project effects at RM 50.4 include replacing existing rock revetment (10-inch diameter rock on the 2:1 slope) with fine sediment (0.01-inch diameter sediment on the constructed bench), resulting in a long-term deficit in winter-spring habitat values that exceed the gains in habitat values at all other sites. This result can be traced to the Delta smelt spawning and incubation response relationship for bank substrate size, which assumes that survival of eggs and larvae drops rapidly to zero as substrate sizes decrease below 0.25 inches in diameter (D50) and that all substrates greater than or equal to 0.25 inches in diameter are optimal (Jones and Stokes 2006)

Although project conservation measures will achieve a long-term replacement of riparian and SRA habitat, project construction will, however, temporarily reduce habitat quality and permanently replace naturally eroding substrate with riprap. In addition, the proposed action has the potential to indirectly affect 17 elderberry shrubs located within 100 feet of the construction limits.

Of the 11.10 acres of terrestrial habitat within the project area, effects of the proposed action may include the removal or disturbance of approximately 1.12 acres of riparian and ruderal herbaceous habitat. No trees are expected to be removed, yet it is assumed that several trees would be affected by the placement of rock revetment around their bases and trimming or pruning may be necessary. Perhaps as much as 700 linear feet of trees may be trimmed or removed to facilitate the placement of rock by barge.

In consideration of the above information, the proposed action is not likely to result in jeopardy to these species as long as the applicable conservation measures are adhered to. The conclusion of non-jeopardy is based on the Corps' commitments to 1) minimize temporary habitat losses through the incorporation of onsite mitigation features (e.g., constructed bench, riparian plantings, and anchored IWM) in the project design, and 2) offset permanent, incremental adverse effects of riprap on fluvial processes and associated habitat values through the implementation of proven conservation measures (e.g., setback levees, removal of riprap) at an off-site conservation area. Concurrent implementation of these conservation measures would adequately avoid, minimize, and mitigate adverse effects to the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, and green sturgeon, as well as adverse effects to designated critical habitat of the winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

Incidental take of Sacramento River winter-run Chinook salmon, Central Valley steelhead, Central Valley spring-run and fall/late-fall Chinook salmon, Delta smelt, green sturgeon, and VELB may occur through the impairment of essential behavior patterns (e.g., feeding, escape from predators) as a result of reductions in the quantity and quality of habitat. In addition, individuals of listed species may be killed, injured, or harassed during construction activities. Incidental take during construction activities is most likely to occur during in-water construction activities (e.g., placing rock revetment riprap along/below shoreline and planting

bench above summer flow conditions). Construction is scheduled during low flow summer months which would reduce the likelihood of killing or injuring the above mentioned species. Once construction is complete, the shoreline would return to favorable habitat conditions for aquatic species as a result of the mitigation measures described below, installation of IWM, and riparian vegetation establishment. The overall net effect of this project would make temporary construction effects less than significant.

Swainson's Hawk and other Raptors

In the event nesting or roosting Swainson's hawks and other raptors are identified, the Corps will coordinate with the CDFG to identify measures to ensure these raptors are not adversely affected. Disturbance from construction activities that may affect Swainson's hawk and other raptors include increased noise levels from generators, staging areas, vehicles, and river barges. Temporary displacement of local wildlife due to increased human presence is likely to occur during construction activities. The Pocket Area is currently used by locals who walk, jog, fish, and bring their dogs and horses onto the levee for recreational purposes. Both feral and domestic cats may also pose a problem for any type of successful nesting activities that may occur. Therefore, it is likely that raptors would avoid areas where the above daily activities occur in close proximity to potential nesting trees making project effects less than significant.

4.3.2.2 Alternative 2

Alternative 2 would have the same effects on vegetation and wildlife as Alternative 1 listed above.

4.3.3 Mitigation

The Corps' mitigation program for project effects on special-status species is based on the mitigation measures described below, and on- and offsite mitigation described in Section 2.9. Mitigation for project effects on special-status species will include both on- and off-site mitigation for the Pocket Erosion Sites and RM 56.7. Additional detail will be added to the mitigation measures described below during the final design phase of the project. The mitigation program will be revised and finalized as the project impacts are updated with additional detail and suitable mitigation lands are identified and acquired. However, the types of impacts are not expected to change and the extent of impacts is expected to be reduced through avoidance and minimization strategies to be exercised during the final design process. Therefore, the mitigation measures below, together with the mitigation incorporated into the project description, are adequate to avoid significant effects under both NEPA and CEQA.

Elderberry Shrubs

The Corps will use the Elderberry GPS location map to determine vehicle and equipment haul routes and work areas. Orange exclusion fencing will be installed around each elderberry shrub and shrub cluster as identified from the map. The Corps will attempt to perform construction without affecting elderberry shrubs by staying outside the 100-foot buffer zone to the greatest extent possible. However, as a result of the dimensions of the work areas, it is

anticipated that work could occur within the 100-foot buffer zone of some elderberry shrubs. In areas where encroachment on the 100-foot buffer has been approved by USFWS, the Corps will provide a minimum setback of at least 20 feet from the dripline of each elderberry plant. The one shrub located within construction limits is at the northeastern-most corner of the RM 50.8 site and will be avoided. A 20 foot buffer shall be provided for the elderberry shrub at RM 50.8. Should this buffer be infeasible the Corps would compensate for the shrubs according to the USFWS 1999 Conservation Guidelines for the VELB. The Corps would transplant this shrub and or compensated for it at a location acceptable to the USFWS and RecBd. At USFWS's discretion, a plant that is unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation.

The Corps will also erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet and must be maintained for the duration of construction.

A qualified biologist will brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. The Corps will instruct all work crews about the status of the beetle and the need to protect its elderberry host plant.

The Corps will restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction and provide erosion control and re-vegetate with appropriate native plants. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

Following completion of river bank improvement activities, the Corps will perform a post-construction evaluation of the elderberry shrubs to determine whether any shrubs were damaged by construction activities. If damage occurs to elderberry shrubs, the Corps will consult with USFWS on appropriate mitigation.

Swainson's Hawks and other Raptors

Prior to construction a USFWS approved biologist will survey and record locations of active nesting sites beginning in the middle of March and continue bi-weekly for two months to determine nesting locations. This biologist will use survey protocol published in Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (parts 2, 3, 4, and 5) as a guide. For those nests located, surveys will then continue through fledging of the chicks, which may occur as late as the middle of August. After nest establishment, nest sites would be monitored weekly.

The detailed surveys will include all areas indicated as well as a ½ mile buffer around the erosion sites (all construction sites, borrow sites, disposal sites, staging areas, and haul routes). All Swainson's hawk sightings, nesting behavior, and nest sites will be recorded and mapped with GPS coordinates included.

CDFG requires that a ½-mile buffer be established around all active Swainson's hawk nests between March 1 and August 15 (California Department of Fish and Game 1994). However, due to the relatively narrow width of the project area and the location and dimensions of the proposed work areas and access roads to riparian vegetation that could provide nesting habitat for Swainson's hawk, a ½-mile buffer may not be feasible in all areas. The Corps will maximize the buffer width around active nest sites on a site-by-site basis and will consult with CDFG on the buffer widths before commencing construction activities. If possible, the Corps would delay construction and maintenance around individual raptor nests until after the young have fledged.

Salmon, Steelhead, Green Sturgeon, and Delta Smelt

To avoid or minimize potential impacts on these listed species, in-water activities will be scheduled for the period July 1-November 30. Juvenile winter-run Chinook salmon, spring-run Chinook salmon, Central Valley steelhead, green sturgeon, and delta smelt could be present at the time of in-water construction activities.

Several project features were designed to address the need for ecologically functional shallow-water and floodplain habitat in the confined reaches of the lower Sacramento River. The low bench and associated vegetation and IWM are designed to retain and enhance the structural and hydraulic complexity of the nearshore zones relative to existing conditions. Key objectives include increasing the availability (habitat area), accessibility (frequency of inundation), and quality (shallow water and instream cover) of nearshore habitat for juvenile Chinook salmon during the periods of peak abundance in the lower Sacramento River. This design is also expected to benefit other native fish species that use nearshore zones and floodplains for spawning and early rearing in the winter and spring (e.g., Sacramento splittail, Delta smelt).

The retention of existing IWM and the installation of additional IWM would effectively retain and create fisheries habitat and more IWM recruitment and retention during winter and spring flows. All branches, limbs and twigs would be retained to the extent practicable to maintain the size, volume, and complexity of IWM. One side of the IWM, however, would be sheered straight to allow a flat alignment of each finished IWM piece against the finished riprap surface. The trees would be placed and anchored by placement of rock so as not to create a hazard for boaters or swimmers at low mean summer water levels. Signage may also be placed if necessary.

4.4 Water Quality

4.4.1 Existing Conditions

The Sacramento metropolitan area is situated at the confluence of the American and Sacramento Rivers in a low-lying flood basin. Levees along these rivers provide flood control for the Sacramento Valley and conveyance for waters flowing from the Sierra Nevada to the Sacramento–San Joaquin Delta. High winter flows can stress levees and berms, weakening them and causing them to fail in certain locations. To maintain the integrity of the flood control system, locations with the potential for failure are identified and remedied. Along the Sacramento River, the Pocket area has been identified as at risk for failure because of erosion on the waterside of the levee.

The Sacramento and American Rivers are the major surface water bodies in the immediate vicinity of the project area. The reach of the Sacramento River including that within the project area is characterized by a very low gradient and a low-velocity flow and is composed almost entirely of deep flatwater with a sand bed. River stage is controlled by flow in the Sacramento and American Rivers, including upstream controlled dam releases, and is subject to diurnal tidal fluctuation. Very little sediment is stored in bars, and the bank-building process typical of lowland alluvial rivers no longer occurs. The channel in the project area is approximately 750 feet wide.

The Corps conducted a study of the hydrology at this site based on the Freeport gauge located approximately 8 miles downstream of the site (U.S. Army Corps of Engineers 2004). Daily flow information is available from 1948-2002 at this location. Results of the study indicate that the annual maximum peak flow (50% chance exceedence) is estimated to be 75,000 cfs. The mean seasonal flows are presented in Table 7 below.

Table 7. Average Flows at Freeport Gauge by Season

Season	Mean Flow at Freeport (cubic feet per second)
Winter	24,100
Spring	21,200
Summer	15,600
Fall	13,800

During the summer and fall months the variation of flows is mild, indicating low variability in daily flow. This is due to minimal precipitation and the influence of reservoir regulation. Winter and spring months, however, experience variations in daily flows. In addition, this reach of the Sacramento River is influenced by year-round diurnal tidal action.

The upper reaches of the Sacramento River generally have excellent mineral and nutrient quality, with a low total dissolved solids (TDS) content. As water flows into the Central Valley, its quality typically degrades because of water diversions and returns. Sources of degradation

include waste discharges such as treated municipal wastewater, urban storm water runoff, and irrigated agricultural return flows.

The average Total Suspended Solids concentration, as recorded for water collected from the Sacramento River just downstream of the project site, near Freeport, is 27 milligrams per liter (mg/L) (Sacramento River Coordinated Monitoring Program 2000). Data generally indicate that in the vicinity of the project area, the Sacramento River has relatively low concentrations of most constituents compared to applicable regulatory criteria or guidelines described in the Central Valley RWQCB's Sacramento River Basin Plan (1998).

4.4.2 Environmental Effects

Significance Criteria

An effect was considered to be significant and to require mitigation if it would result in one or more of the following:

- Alteration in the quantity and quality of surface runoff.
- Degradation of water quality.
- Violation of any water quality standards or waste discharge requirements.
- Substantial alteration of the existing drainage pattern of the site or area, such that flood risk and/or erosion and siltation potential would increase.
- Placement of structures that would impede or redirect flood flows within a 100-year flood plain.
- Exposure of people, structures, or facilities to significant risk from flooding, including flooding as a result of the failure of a levee or dam.
- Creation of or contribution to runoff that would exceed the capacity of an existing or planned stormwater management system.
- Reduction in groundwater quantity or quality.

4.4.2.1 Alternative 1: Proposed Action

Effects on water quality that could result from construction activities were qualitatively evaluated on the basis of construction practices and materials to be used, the location and duration of the activities, and the potential for water-quality or beneficial-use degradation of water bodies near the proposed project. Operational effects on surface hydrology and water quality were evaluated qualitatively on the basis of the proposed project's potential to significantly alter the surface runoff patterns, increase the quantity of runoff, or generate additional sources of pollution. It is assumed that standard pollution prevention measures, including erosion and sediment control measures, good housekeeping, proper control of non-stormwater discharges, and hazardous spill prevention and response measures will be implemented as part of the project design. The need for pollution prevention measures is reiterated throughout this section where appropriate and where potential water quality impacts are likely to occur.

The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD. Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area may be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

The placement of this riprap within the channel would temporarily generate increased turbidity in the immediate vicinity of the project area. The placement of riprap on the toe to the water surface could result in a plume of sediments generated from the channel bottom and the channel side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan (the Basin Plan identifies a change in turbidity above 10% of the ambient turbidity as significant) (Central Valley Regional Water Quality Control Board 1998).

The placement of these rocks on the silts and sands within the river has the potential to be significant. However, the Corps and the RWQCB agreed upon specific standards to be met during implementation of projects under the SRBPP, however this waiver is now expired and a new application to the RWQCB has been submitted (Appendix C). A 404 (b) 1 analysis for the project under the Clean Water Act is shown in Appendix D.

Small volumes of petroleum products (fuel, engine oil, and hydraulic line oil) would be temporarily used and handled to operate the construction equipment. There is a danger that these materials may be released in accidental spills and result in harm to the environment. The Corps will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that would reduce water quality effects to a less-than-significant level.

4.4.2.2 Alternative 2

Alternative 2 would have the same effects water quality as Alternative 1 listed above.

4.4.3 Mitigation

The Corps would implement a Storm Water Pollution Prevention Plan before and during construction to minimize turbidity generating activities. The Corps will monitor turbidity and settleable solids to avoid violation of basin standards. The contractor would be required to develop and implement a hazardous materials management plan prior to initiation of construction. The plan would include best management practices to (1) reduce the likelihood of spills of toxic chemicals and other hazardous materials during construction, (2) describe a specific protocol for the proper handling and disposal of materials and contingency procedures to

follow in the event of an accidental spill, and (3) describe a specific protocol for the proper handling and disposal of materials should materials be encountered during construction.

The Corps' contractor will conduct water quality tests specifically for increases in turbidity and sedimentation cause by construction activities:

- Sampling location – Water samples for determining background levels shall be collected in the Sacramento River within the general vicinity for each erosion construction site. Testing to establish background levels shall be performed at least once a day when construction activity is in progress. Water samples for determining down current conditions shall be collected in the Sacramento River at a point 5 feet out from the shoreline and 300 feet down current of each erosion site:
- Turbidity – During working hours, the construction activity shall not cause the turbidity in the Sacramento River down current from the construction sites to exceed 25 NTU's above background levels.
- Settleable Solids – During working hours, the construction activity shall not cause the settleable solids in the Sacramento River down current from the construction sites to exceed 0.5 ml/L above background levels.

The water quality certification application and fee are shown in Appendix C.

4.5 Air Quality

4.5.1 Existing Conditions

Construction would occur within the Sacramento Valley Air Basin. The air basin is bounded by the Coast Ranges to the west and the Sierra Nevada to the east. The Carquinez Strait, a sea-level gap in the Coast Ranges, is located 50 miles southwest, and the intervening terrain is very flat. The prevailing wind direction in Sacramento is southwesterly, resulting from marine breezes through the Carquinez Strait. During winter, when the sea breeze diminishes, northerly winds occur more frequently, but southerly winds still predominate.

A relatively stable high pressure zone positioned off the coast diverts storms to the north, away from California, during the spring, summer, and early fall. The dry, warm, subsiding air of this system produces an atmospheric condition known as a subsidence inversion where warm air overlies cooler air. Subsidence inversions may be several thousand feet deep and, together with strong sunlight, can produce worst-case conditions for smog, of which ozone is the largest single component. In conjunction with this high-pressure zone, a thermal trough (a low-pressure zone caused by intense surface heating) is normally positioned over the Central Valley. The relative positions of these pressure zones cause air to blow through the Carquinez Strait to the Sacramento Valley. This helps cool the region, but it also carries pollutants from upwind, urban sources.

During the late fall, winter, and early spring, the high-pressure zone shifts to the south, allowing numerous storm fronts to sweep through the region. Typically, over 30 of these winter

storms can be expected per year, accounting for virtually all of the precipitation Sacramento receives in a typical year (about 18 inches in an average year). Periods of stagnation between storms are characterized by very light winds. Surface inversions, which can form under these conditions, are most often observed in the morning from October to February.

Air quality in the air basin is regulated at the Federal, State, and regional agencies. At the Federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the Federal Clean Air Act. The Air Resources Board is the State agency that regulates mobile sources and oversees implementation of State air quality laws, including the California Clean Air Act.

The primary agency that regulates air quality on a regional level in the project area is the Sacramento Metropolitan Air Quality Management District (SMAQMD). Regional planning and attainment of air quality goals also involve the neighboring local air quality agencies of El Dorado County Air Pollution Control District, Feather River Air Quality Management District, Placer County Air Pollution Control District, and Yolo-Solano Air Quality Management District. SMAQMD and these local agencies have permit authority over stationary sources, act as the primary reviewing agencies for environmental documents, and develop regulations that must be consistent with, or more stringent than, Federal and State air quality policies.

Pursuant to the Federal Clean Air Act, the U.S. EPA has established national ambient air quality standards for criteria pollutants, including ozone, carbon monoxide (CO), and particulate matter of respirable size (PM₁₀ and PM_{2.5}). California's ambient air quality standards are generally more stringent than the national standards. The national and State standards for ozone, and CO, and PM₁₀ are shown in Table 8.

Table 8. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹	National Standards ²	
			Primary ³	Secondary ⁴
Ozone	8 hour	--	0.08 ppm	0.08 ppm
	1 hour	0.09 ppm	0.12 ppm	0.12 ppm
Carbon monoxide	8 hour	9.0 ppm	9 ppm	--
	1 hour	20 ppm	35 ppm	--
PM ₁₀	Annual geometric mean	30 µg/m ³	--	--
	Annual arithmetic mean	--	50 µg/m ³	50 µg/m ³
	24 hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
PM _{2.5}	Annual arithmetic mean	--	15 µg/m ³	15 µg/m ³
	24 hour	--	65 µg/m ³	65 µg/m ³

¹California standards for ozone, carbon monoxide, and suspended particulate matter (PM₁₀) are values that are not to be exceeded.

²National standards, other than ozone and those based on annual averages or annual arithmetic mean, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

³National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

⁴National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

ppm = parts per million; ug/m³ = micrograms/per cubic meter.

Source: California Air Resources Board, 1993.

The Sacramento Valley Air Basin does not consistently meet several applicable State air quality standards (California Air Resources Board, 1996). Depending on the pollutant, the boundaries of the attainment areas vary. The air basin, including Sacramento County and the bordering areas of Placer and El Dorado Counties, is designated as a severe nonattainment area for the Federal and State ozone standards. For CO, the Sacramento urbanized area was reclassified from nonattainment to attainment of the Federal and state standards in 1998; therefore, the project area is considered to be a maintenance area for CO. For the Federal PM₁₀ standards, only Sacramento County has been designated a nonattainment area; however, redesignation to attainment has been requested by SMAQMD. For the State PM₁₀ standards, the entire air basin is considered a nonattainment area.

4.5.2 Environmental Effects

Significance Criteria

The project would have a significant adverse effect on air quality if it would:

- Violate applicable air quality standards.
- Contribute substantially to an existing or projected air quality violation.
- Expose sensitive receptors to substantial pollutant concentrations.

4.5.2.1 Alternative 1: Proposed Action

This section describes the potential air quality effects of the Proposed Action, including exhaust emissions from construction equipment and worker commute and delivery vehicles, fugitive dust generated by construction activities and vehicle travel over unpaved roads. In order to complete the analysis, information was collected on construction activities, duration, and timing; equipment use and activities for each construction year.

Emissions associated with vehicle exhaust for employee commute vehicles and delivery trucks were estimated using SMAQMD Road Construction Emission Model Version 5.1, with EMFAC 2002 emission factors, the latest version of this California Air Resources Board model (SMAQMD, 2003) (Appendix E). These emissions were based on a 95-mile round trip for delivery trucks and a 20-mile commute each way for workers. Emissions associated with the operation of construction equipment were estimated using the Sacramento Metropolitan Air Quality Management District's Guide to Air Quality Assessment in Sacramento County (SMAQMD, 2004). Construction equipment data were estimated in the form of equipment descriptions and potential use of all equipment being used simultaneously for 8 hours a day. This information was used to estimate daily and annual exhaust emissions for construction equipment.

Fugitive dust emissions from vehicle travel over unpaved roads and construction activities were estimated using data and emission factors from SMAQMD Road Construction Emission Model Version 5.1, with EMFAC 2002 emission factors, the latest version of this California Air Resources Board model (SMAQMD, 2003)

Table 9 summarizes the input information and assumptions regarding construction activities used to estimate construction emissions. For each construction year, the table lists the anticipated cubic yards of material to be imported from the river barge, the anticipated number of employee commute trips, the anticipated number of delivery and haul truck trips, and the construction equipment anticipated to be used.

Thresholds developed by the SMAQMD and the U.S. EPA were used in determining the significance of project-related air quality effects. Emissions would be considered significant if emissions exceeded the local thresholds established by the SMAQMD for construction activities.

These thresholds were established to assist in CEQA analyses within the SMAQMD boundaries:

- 85 pounds per day of NO_x
- 85 pounds per day of ROG
- 275 pounds per day of PM₁₀

Table 9. Emission Sources and Assumptions Used to Determine Air Emissions

Emission Source	Pocket Area Erosion Sites
Material placed (from river barge)	72,800 cubic yards of riprap 14,100 cubic yards fill material 1,117 linear feet of IWM
Employee commute trips	7 employee trips/day, 20 miles each way
Delivery truck trips/ Debris haul truck trips	7 truck trips 95 miles average round trip 10 cubic yards average load 30 hauling days
Fuel-fired construction equipment	Crane Barge (2) Pick Up trucks (2) Tug Boats (2) Motor Boat (1)

Emissions for the project would be considered significant under NEPA if annual emissions exceeded U.S. EPA's general conformity thresholds. Conformity thresholds are based on the de minimis thresholds included in the U.S. EPA's general conformity guidelines, as applicable for the Sacramento area. The thresholds are:

- 25 tons per year of NO_x
- 25 tons per year of ROG

- 100 tons per year of CO
- 100 tons per year of PM₁₀

Potential air pollutants generated during construction include PM₁₀ emissions from debris-moving activities and vehicle travel on unpaved roads, and exhaust emissions from operation of construction equipment, delivery and haul trucks, and employee vehicles. Tailpipe exhaust emissions include ozone precursors (NO_x and ROG) and PM₁₀. The air quality estimates are based on waterside construction equipment emissions (barges and boats) as well as landside emissions (trucks) that amount to 7 vehicle and employee trips per day to and from the levee.

Table 10 presents the maximum daily emission estimates in pounds per day (lb/day) for construction of the Proposed Action when hauling occurs and Table 11 presents the average annual emissions in tons per year (ton/yr) when rock placement occurs.

Table 10. Maximum Daily Construction Emission Estimates (lbs per day)

Project Component	July 1 to Nov. 30		
	NO _x	ROG	PM ₁₀
Pocket Erosion Sites	244	41	19
Threshold	85	85	275

Table 11. Average Yearly Construction Emission Estimates (tons per year)

Project Component	July 1 to Nov. 30		
	NO _x	ROG	PM ₁₀
Pocket Erosion Sites	6.3	1	<1
Threshold	25	25	100

Based on this analysis, SMAQMD thresholds would be exceeded for NO_x under the proposed action. This exceedence would occur if all construction equipment operated simultaneously for 12 hours straight per typical construction day. However, the only 12 hour shifts being conducted for the majority of the project duration would be the two barge cranes. These barges would be anchored in the water at each erosion site that is being repaired. The tugboats would only be used to push and pull the barges into position prior to anchoring. Therefore, average emissions would be far less on a given day work is being conducted on a particular erosion site. Emissions from trucks, motor boats, and other construction equipment would only run when being used and never exceed the daily threshold. Federal conformity for NO_x would not be exceeded. Federal conformity for ROG, PM₁₀, and CO would not be exceeded. No sensitive receptors (residences and schools) are located in the project area.

Therefore, no sensitive receptors would be affected by short-term increases in dust and other air pollutants.

4.5.2.2 Alternative 2

Alternative 2 would have the same effects on air quality as Alternative 1 listed above.

4.5.3 Mitigation

Significant air quality effects have been identified, and the Corps would implement the following mitigation measures for NO_x emissions in years where SMAQMD thresholds and Federal thresholds of significance are exceeded.

- The Corps and RecBd would pay the SMAQMD an offsite mitigation fee that would be based on the incremental significant emissions at a rate of \$13,600/ton (or other negotiated amount) of NO_x, and that the fee would be paid to SMAQMD prior to beginning construction. This mitigation fee would be used as offsite mitigation within the air basin to mitigate NO_x from other ongoing construction projects. The payment is calculated to be \$129,744.00 for exceedence of 159 lbs above the 85lbs/day or 9.5 tons during the construction of the project.
- Reducing NO_x emissions from off-road diesel powered equipment
- Require injection timing retard of 2 degree on all diesel vehicles, where applicable.
- Install high pressure injectors on all vehicles, where feasible.
- Encourage the use of reformulated diesel fuel.
- Electrify equipment, where feasible.
- Maintain equipment in tune with manufacturer's specifications.
- Install catalytic converters on gasoline-powered equipment.
- Substitute gasoline-powered for diesel-powered equipment where feasible.
- Use compressed natural gas or onsite propane mobile equipment instead of diesel powered equipment, where feasible.
- Controlling visible emissions from off-road diesel powered equipment

The project would ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) would be repaired immediately, and Corps and SMAQMD would be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment would be made at least weekly, and a monthly summary of the visual survey results would be submitted throughout the duration of the project except that the monthly summary would not be required for any 30-day period in which there is no construction activity. The monthly summary would include the quantity and type of vehicles surveyed, as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section would supersede other SMAQMD or State rules or regulations.

Also, additional best management practices would be implemented for ozone and PM₁₀ to help protect ambient air quality conditions. BMP's for this project are as follows:

- The contractor would perform routine tuning and maintenance of construction equipment to ensure that the equipment is in proper running order.

The contractor would monitor dust conditions along access roads and within the construction area to ensure that the generation of fugitive dust is minimized. Specific action measures include:

- Periodic application of water to disturbed areas, at least two times per day during hot weather.
- Suspension of soil-disturbing activities during periods with winds over 25 miles per hour.

With the implementation of these mitigation measures, the project would not exceed SMAQMD thresholds and Federal Thresholds of Significance for the project. As a result, potential emissions due to the project would be below the level of significance for air quality.

4.6 Noise

4.6.1 Existing Conditions

Sound levels in the project area are governed primarily by vehicle and truck activity driving South River Road along the west bank of the river and watercraft activity on river itself. The Pocket area residential neighborhood along the east bank is fairly quiet since there are no industrial type activities occurring within a few miles.

Noise sensitive land uses are generally defined as locations where people reside or where the presence of air emissions could adversely affect the use of the land. Typical sensitive receptors include residents, school children, hospital patients, and the elderly, among others. The City of Sacramento Noise Ordinance states that exterior noise limits will not exceed 50 dB between 10:00 p.m. and 7:00 a.m. and 55 dB between 7:00 a.m. and 10:00 p.m. for residential and agricultural areas. However, construction activities between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and 9:00 a.m. and 6:00 p.m. on Sunday are exempt from this ordinance. The ordinance further states that internal combustion engines in use on construction sites must be equipped with suitable exhaust and intake silencers which are in good working order.

The Corps has no adopted noise standards applicable to the construction and operation of its facilities. Because the project lies within the City of Sacramento, the City's noise policies and regulations are applicable to the proposed project. The City has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The General Plan is a document required by state law that serves as the city's blueprint for land use and development. The General Plan provides an overall framework for development in the City and protection of its natural and cultural

resources. The Noise Element of the General Plan contains planning guidelines relating to noise. The noise ordinance is an enforcement mechanism for controlling noise in the City.

4.6.2 Environmental Effects

Significance Criteria

Based on City of Sacramento noise standards and the other relevant standards, the following significance criteria have been developed for this project. Noise from construction activities is considered significant if it would exceed:

- Applicable City of Sacramento noise ordinance limits.

4.6.2.1 Alternative 1: Proposed Action

Work is anticipated to occur for up to 10 hours per day, six days a week over a 120-day period. Significant noise generating activity is expected to occur during the first 60 days of the 120 period when installation of riprap, fill materials, and IWM occurs. The remaining 60 day period would be used for plant establishment. Table 9 summarizes the typical construction noise levels from each type of equipment that would be used during construction activities. To determine a combined-source noise level, a reasonable worst-case assumption is that the three loudest pieces of equipment would operate simultaneously and continuously over at least a 1-hour period.

Table 12. Construction Equipment Noise Levels

Construction Phase and Equipment	Number of Equipment Pieces	Typical Noise Level (dB) 50 feet from Source
Crane	2	82
Motor Boat	1	82
Pick Up Truck	2	65
Tugboat	2	82

Source: Federal Transit Administration 1995, Geier & Geier Consulting 1997

Implementation of the project would increase noise and vibration levels along project access routes and near the project site. Heavy construction equipment would be used to clear some vegetation, import rock and embankment materials, prepare river banks, place rock on the toe of the bank, and place trees over the revetment as IWM. Residences are located approximately within 200 feet from each Pocket erosion site. The levee that lies between the river and the residence is approximately 30 to 40 feet high providing some screening from the generated noise. Additionally there is a dense riparian forest area that also provides screening.

Equipment typically used in construction of bank protection (bulldozers, heavy trucks, loaders, excavators, and backhoes) generates peak noise levels ranging from 80 dB to 90 dB at a

reference distance of 50 feet. Rock dumping may generate the highest levels, however, possibly reaching 100 dB. Noise produced by these activities would be reduced over distance at an average rate of about 6 dB per doubling of distance in open landscapes. Where the existing river bank and riparian forest serve as sound barriers, it would be expected to reduce noise at nearby residences by up to an additional 15 dB. While not all sources of noise would be shielded by the river bank and forest, it is likely that most severe noise generation would occur on the waterside of the riverbank and be somewhat attenuated by the riverbank. Materials hauled by trucks on the levee crown would typically be the source of noise and vibration having the greatest potential to disturb neighboring residents since this activity is not necessarily shielded by the levee. Hauling by trucks on the levee crown would be intermittent, and haul speed limits would be imposed in order to reduce noise and vibration levels. Considering these factors, intermittent peak sound levels of 56 dB would be expected at the nearest residence.

Given that noise and vibration would be limited to daytime hours and would not subject residences to prolonged noise exposure above 55 to 65 dB (occasionally peaking at 65 dB) or severe noise levels above 80 dB, these potential effects are considered less than significant if normal measures to prevent unnecessary noise are implemented.

4.6.2.2 Alternative 2

Alternative 2 would have the same effects on noise as Alternative 1 listed above.

4.6.3 Mitigation

Noise generated by construction activities during the proposed construction hours is exempt from the City ordinance. Therefore, this effect is less than significant. No mitigation is required.

4.7 Traffic

4.7.1 Existing Conditions

The Pocket area erosion sites are located just up river from Garcia Bend Park and Boat Launch Facility and extend up to the intersection of Riverside Blvd. and 43rd Avenue. The two-lane boat launch is free to the public and is open 24-hours a day. This park and boat launch are popular in the spring and summer with lots of in and out traffic utilizing the athletic fields, boating and fishing, jetskiing, biking, walking and jogging. Access to Garcia Park is located off Pocket Rd. This main street runs the same direction as the river. Several residential homes and neighborhood streets exist between Pocket Rd. and the east bank levee. There are many pedestrian access points to reach the levee from these streets. Traffic along Pocket Rd and Riverside Blvd is usually busiest during work commute hours. Vehicle access is restricted onto the levee. The Department of Water Resources conducts maintenance and operations on the levees as necessary throughout the year.

4.7.2 Environmental Effects

Significance Criteria

Effects to traffic and transportation as a result of implementing the proposed project were analyzed based on the significance criteria set forth in the State CEQA Guidelines. Effects were found to be significant if the project would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system
- Exceed either individually or cumulatively, a level of service standard established by the by the county congestion management agency for designated roads and highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature or incompatible uses;
- Result in inadequate emergency access;
- Result in inadequate parking capacity; or
- Conflict with adopted policies, plans, or programs supporting alternative transportation.

4.7.2.1 Alternative 1: Proposed Action

All riprap, soil backfill, and cut tree placement shall be performed from a barge on the waterside only. Installation of willow cuttings, plantings, seeding, and plant maintenance will be performed from the landside. The Corps' contractor will access the levee crown at four locations: Garcia Bend Park, Pocket Road Staging Area 1 Ramp, Arabella Way Access Ramp, and the Riverside Avenue Access Ramp. The levee crown access road will be limited between Garcia Bend Park and the Riverside Avenue Access Ramp. Several pipe gates are located in this stretch.

There would be approximately 14 truck trips a day entering the site to deliver construction materials and remove construction debris as necessary. These trips would take place during business hours of 6:00 a.m. to 5:00 p.m. However, most trips would occur during off-peak traffic hours, from 9:00 a.m. to 4:00 p.m. Overall, this effect is considered less than significant. In order to avoid any potential delays or safety issues on Pocket Rd., levee system, or other haul routes, a traffic control plan would be developed and implemented by the Corps' contractor.

4.7.2.2 Alternative 2

Alternative 2 would have the same effects on traffic as Alternative 1 listed above.

4.7.3 Mitigation

The construction contractor will coordinate with local public works or planning departments, including the City of Sacramento, to prepare a traffic control plan during construction. The traffic control plan, developed by the contractor, will include a traffic

management plan with specific measures to manage traffic in the project area and along haul routes that will be submitted to the City of Sacramento for review and approval prior to the start of construction. The purpose of the plan will be to:

- reduce, to the extent feasible, the number of vehicles (construction and other) on the roadways adjacent to the project area;
- reduce, to the extent feasible, the interaction between construction equipment and other vehicles; and
- promote public safety through actions aimed at driver and road safety.

The traffic control plan will include the following measures:

- Through access for emergency vehicles will be provided at all times.
- Access will be maintained for driveways and private roads.
- Adequate off-street parking will be provided for construction-related vehicles throughout the construction period.
- Roadway segments or intersections that are at or approaching an LOS that exceeds local standards will be identified.
- A plan will be provided for construction-generated traffic, to avoid these locations at the peak periods, either by traveling different routes or by traveling at nonpeak times.
- Traffic controls on major roads and collectors should include flagpersons wearing bright orange or red vests and using “stop/slow” paddles to direct drivers.
- Access to public transit should be maintained, and movement of public transit vehicles will not be impeded as a result of construction activities.
- Coordination with SCTD will be required regarding lane closures (partial or entire) that occur on bus routes and to provide notice of construction that could affect transit service routes so that SCTD can adjust routes or schedules. SCTD will require adequate lead-time to develop temporary service changes caused by construction and for providing notice of those changes to the public.
- Construction warning signs will be posted in accordance with local standards or those set forth in the Manual on Uniform Traffic Control Devices (Federal Highway Administration 2000) in advance of the construction area and at any intersection that provides access to the construction area.
- Written notification will be provided to appropriate contractors regarding appropriate routes to and from construction sites and weight and speed limits for local roads used to access construction sites.
- A sign will be posted at all active construction sites that give the name and telephone number or electronic mail address of the Corps staff member to contact with complaints regarding construction traffic. The sign should be at least one square yard in size.

The traffic control plan to be developed by the construction contractor, will be included in the construction specifications, implemented by the construction contractor throughout the construction period, and monitored by the Corps.

4.8 Recreation and Navigation Safety

4.8.1 Existing Conditions

The Sacramento River along the project area has several recreation facilities and public access points administered by the Counties of Sacramento and Yolo and the Cities of Sacramento and West Sacramento. There are also several private marinas in the area. Popular water-dependent activities include swimming, boating, and fishing. Levee and river bank activities include walking, jogging, horseback riding, bicycling, picnicking, and sightseeing. Boating activities predominantly take place in summer months, and fishing is a year-round activity. Water-dependent activities account for approximately 52 percent of the recreation uses on the Sacramento River (County of Sacramento and U.S. Bureau of Reclamation 1997).

The Pocket area is one of the most popular destinations for both locals and tourists to gain access and utilize the river. Garcia Bend Park and Boat Launch Facility has become one of the busiest locations along the river. As a result of this popularity significant jetski and boating activities have contributed to increased erosion along the bank in this part of Sacramento County. This increase in erosion has contributed to the development of important habitat for fish and wildlife species. Fishing and sightseeing in or around this habitat has become more common.

Portions of the project area have steep slopes, existing riprap and vegetation that make access for recreation difficult while other portions of the project area provide high quality recreation opportunities along the riverfront. Private river access from the Pocket area has become an important issue since development in this neighborhood began. Several homes up and down the river contain private floating boat docks (berths) and walkways allowing residents to access the river. These docks are shown in Plate 2.

4.8.2 Environmental Effects

Significance Criteria

Effects on recreation would be considered significant if implementation of an alternative would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
- Result in a substantial loss of recreational opportunities.
- Substantially increase the risk of injury to recreationists in or adjacent to the project area.

4.8.2.1 Alternative 1: Proposed Action

During construction from July through November, the erosion site locations and immediate areas adjacent to the sites would be closed to public. However, the levee would be open along the east bank with signs posted warning of construction activities within the vicinity.

Detours and alternate routes will be implemented as necessary. Most of the erosion sites are inaccessible due to steep slopes and thick vegetation so recreation activities would not be displaced as a result of construction. Garcia Bend Park and Boat Launch Facility would continue to operate normally and signs will be posted at the park and dock area warning the public of the construction activities along the riverbank. It is anticipated that the barge and tugboats would occupy approximately 200 feet of the river channel.

The placement of soil, riprap, vegetation, and IWM along the bank would be designed to enhance the natural qualities of the area. Fishing, boating, and swimming opportunities in the area would remain substantially the same as before construction, with the exception of the temporary closures. Existing trees would remain in place to provide shade, nesting, and quality habitat for wildlife. The installation of rocks, soil and native vegetation, IWM, and their post-construction appeal to recreationists would not be substantially diminished when compared to existing conditions. As a result, there would be no substantial loss of recreational values at each erosion site.

Existing IWM and underwater vegetation poses a threat to recreationists who travel near the river bank. Most boat operators, jetskiers, and swimmers usually avoid sections of river where snags, downed trees, strainers, logs, and concrete debris occur. Implementation of the project would fortify and secure existing IWM, add new highly visible IWM that is visible from at the mean summer water surface elevation (5 feet NGVD), and place uniform riprap along the bank. Therefore, foot entrapment would be avoided in the proposed project area by the use of relatively uniform gradation in rock sizes, including a full range of small, medium, and large rocks that would preclude the presence of large voids. A more gradual slope and a plantable soil surface would replace the very steep banks of the erosion sites. This modification would reduce the current risk of falling to bank users. In addition, should watercraft become stuck at this site, or should a swimmer need to get out of the water, the riprap would provide an area that could be easily accessed.

To ensure that fish habitat is at the highest quality possible, the project would incorporate the anchoring of IWM so that it lies within the flowing channel without floating downstream. The IWM clusters would be placed at elevations ranging from 8 to 11 feet NGVD, which are typically not inundated during the summer or fall. The IWM clusters act as fish habitat for sensitive species that use the Sacramento River, such as Chinook salmon and steelhead.

It is likely that the private boat dock and walkway located at RM 50.8 erosion site will be removed due to its proximity within the project footprint. The placement of riprap, IWM, and riparian vegetation establishment (planting bench) would impede boat access to this berth. During periods of low flow such as typical summer flow conditions, the riprap and planting bench would be exposed at the surface or just beneath the surface preventing any successful boat

access to the shoreline. The owner of this dock will be notified by the Recbd and measures will be taken to move this dock to another location.

Access to the boat docks at RM's 50.4, 51.5, and 52.4 may be temporarily halted due to the presence of construction equipment (boats, barges, landside staging and storage material) working at these erosion site locations.

4.8.2.2 Alternative 2

Alternative 2 would have the same effects on recreation and navigation safety as Alternative 1 listed above.

4.8.3 Mitigation

The placement of IWM would incorporate the following design factors to minimize the risk to recreationists:

- The design would ensure local approach visibility and would incorporate the use of natural indicators, such as a partially emergent portion of the IWM, in combination with vegetation on the low elevation areas, to act as a visual warning of the presence of shallowly submerged hardscape so as to reduce the hazard to power boaters and paddlers. This would ensure visual warning so that boaters, swimmers, and other recreationists would have adequate time to avoid the IWM and possible injury or damage to property.
- IWM would be placed in a manner that reduces its ability to act as a "strainer", thus reducing the risk to recreationists flowing with the river current, especially swimmers and those in canoes. Specifically, the outboard portions of IWM would be oriented in a downstream direction or would be installed in the form of relatively compact rootwads that would tend to deflect watercraft and reduce the risk for entrapment or straining within the IWM.
- Detours and alternate routes will be imposed as necessary on the levee portions that occur within the construction zones so recreationists can avoid any hazards and still utilize the Pocket area not affected by project activities.
- Construction personnel will notify boaters and jetskiers if they approach within 100 feet of in water construction equipment (barges and tugboats, etc.) to stay away and avoid driving close to the construction zone.

4.9 Esthetics/Visual Resources

The term "esthetics" typically refers to the perceived visual character of an area, such as of a scenic view, open space, or architectural facade. The aesthetic value of an area is a measure of its visual character and visual quality combined with viewer response (Federal Highway Administration 1983). This combination may be affected by the components of a project (e.g., buildings constructed at heights that obstruct views, hillsides cut and graded, open space changed to an urban setting), as well as variable elements such as light, weather, and the length and frequency of viewer exposure to the setting. Aesthetic impacts are changes in viewer response as a result of project construction and operation.

Visual Character

Visual character is the appearance of the physical form of the landscape composed of natural and human-made elements including topography, water, vegetation, structures, roads, infrastructure, and utilities—and the relationships of these elements in terms of form, line, color, and texture.

Visual quality

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity as modified by its visual sensitivity. Vividness is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns. Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes as well as in natural settings.

Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape (Federal Highway Administration 1983). High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer response is the psychological reaction of a person to visible changes in the viewshed, defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., roadway or trail) (Federal Highway Administration 1983). The measure of the quality of a view must be tempered with the overall sensitivity of the viewer and viewer response. Viewer sensitivity is dependent on the number and type of viewers and the frequency (e.g., daily, seasonally) and duration of views (i.e., how long a scene is viewed). Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and the viewing duration.

4.9.1 Existing Conditions

The project area is located south of downtown Sacramento along the left bank of the Sacramento River in the Pocket neighborhood. The erosion sites are located on the waterside of the levee and consist of existing riprap and concrete debris, fallen trees and IWM, soft sandy bank (eroded), uneven shoreline (undercut), dense vegetation, tall mature trees, and several scour holes (caves) and an expansion of shallow sandy natural beach area. Over 4,400 feet of river bank in the Pocket area will be repaired to prevent further erosion.

The appearance of the opposite bank of the channel is similar to the project area but does not show significant signs of erosion. An abundance of tall mature trees and vegetation dominate the riverbank across from these erosion sites. The vividness, intactness, and unity of this reach are moderate to high because of the scenic views it provides of the river and the presence of mature riparian vegetation. Viewers of the erosion sites would be described as those traveling South River Blvd., boaters, and recreationists using the levee.

Several homes and their backyards are situated adjacent to the toe of the landside levee in the Pocket area. Since the levee crown exceeds 30 feet from the toe in some areas, most homeowners view the landside slope covered with ruderal and shrubby vegetation. A few tall mature trees provide shade and block views from the levee toward these residences. Two story homes next to the levee overlook the crown and provide views of mature riparian vegetation, the entire river channel, and opposite bank. In addition several homeowners have planted trees along the landside slope to enclose their backyards and increase privacy from viewing individuals that utilize the levee. Shade is an important factor that prevents direct sunlight and light reflection off the river surface from entering into many homes of the Pocket area.

4.9.2 Environmental Effects

Significance Criteria

Significance criteria were developed based on the State CEQA Guidelines. Effects were considered significant if the project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of light or glare which would adversely affect day or nighttime views in the area.

4.9.2.1 Alternative 1: Proposed Action

A crane on top of a barge or on top of the levee would be visible at the project area. Boaters, pedestrians and bicyclists using the Pocket levee, or motorists traveling on South River Road would be able to see the construction equipment. The equipment would be visible for approximately 120 days. The presence of construction equipment would degrade the visual quality of scenic vistas from the levee top and river to low vividness, intactness and unity. However, because these effects are temporary, it would last no longer than the construction duration. These effects are considered to be less than significant.

Visual effects from the placement of riprap and rock onto the bank would be offset by the installation of IWM, soil fill, and tree plantings. These features would successfully establish and cover the riverbank within a 2 year period.

4.9.2.2 Alternative 2

Alternative 2 would have the same effects on esthetics/visual resources as Alternative 1 listed above.

4.9.3 Mitigation

Revegetation and site restoration, as incorporated into the project would add more visual resources to areas that have been degraded and improve viewshed opportunities for the Pocket neighborhood. No trees are anticipated for removal thus preserving the existing visual resources. Therefore, no mitigation is required.

4.10 Cultural Resources

4.10.1 Existing Conditions

Construction of the SRBPP has resulted in continuous investigations of historical and archeological resources along the Sacramento River. Numerous literature and record searches, field examinations, and mitigation efforts have been performed. The region around the area of potential effects (APE) has a concentration of known historic resources (see Plate 2 for project footprint).

Records and Literature Search

Records and literature searches were conducted at the North Central Information Center at California State University, Sacramento on February 24, 2004 and January 12, 2005. Approximately 90 percent of the APE has been previously surveyed. These surveys were conducted by K.J. McIvers in 1987; Environmental Sciences Associates in 1996; Far Western Anthropological Research Group, Inc. (FWARG), in 1990 and 1995; the Corps in 2001; Jones & Stokes Associates, Inc. (J&S) in 1997; PAR and Associates in 1988; Peak and Associates in 1984, 1985, 1987, and 1988; and Roger H. Werner in 1988. These surveys discovered the following resources outside the APE:

- CA-SAC-26 – The only known prehistoric site near the proposed mitigation site APE is a Nisipowinan Village Site, also known as “Joe’s Mound,” located in Discovery Park. Known ethnographically as *Pujune*, the site was listed on the National Register of Historic Places (NRHP) in 1971. Artifacts noted at the site include burned bone, freshwater mussel shell, fire-affected rock, and ground stone fragments.
- CA-SAC-29 – Located north of the APE, this site was leveled by cultivation and construction of a house. Previous investigations indicate that artifacts were present.
- CA-SAC-30 – Although leveled by cultivation, auger investigations revealed charcoal deposits at this site, located north of the APE near Chicory Bend.
- CA-SAC-41 – The Deangelis Ranch site has been partially excavated and found to contain a variety of prehistoric and historic deposits. Found at the site were midden deposits, biface and projectile point fragments, debitage, groundstone fragments, shell beads, baked clay, possible human bone, and mammal, bird, and fish bone.
- CA-SAC-42 – Previously recorded as the Souza Mound, this site is located near Pocket Road in a residential area. Construction of homes and roads has affected the site although the mound is still visible.
- CA-SAC-43 – Located partially under the levee and south of the APE, this site consists of two collections, one including human remains and associated artifacts recovered in

1939 to 1940 and a second including a diversity of artifact forms and midden constituents obtained in 1968. Occupation dates to 2400-600 B.P. This site was fully analyzed, evaluated, and mitigated for by the Corps through FWARG in 1995.

Within the APE is the Sacramento River East Bank Levee. The levee was constructed in 1909 by local landowners within Reclamation District No. 1. Since its construction, the levee has been modified numerous times, with work completed in 1928, 1943, and 1956-57. The levee was also likely reconstructed and raised to its current dimensions in the 1930's or early 1940s.

Field Survey

Most of the APE has already been surveyed. However, since some of the previous surveys date back to a decade ago or longer, the APE was resurveyed in its entirety on March 27 and 30, 2006. These field site visits indicated the presence of private boat docks and gangways which appear to be modern. No other known prehistoric or historic resources have been observed within the APE.

4.10.2 Environmental Effects

Significance Criteria

An alternative would be considered to have a significant adverse effect on cultural resources if it:

- Diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Types of effects include physical destruction, damage, or alteration; isolation or alteration of the character of the setting; introduction of elements that are out of character; neglect; and transfer, lease, or sale.

4.10.2.1 Alternative 1: Proposed Action

No known cultural resources would be affected by this alternative. Most of the APE was previously surveyed between 1987 and 2001. Field surveys of those areas not previously surveyed and where the surveys were completed a decade ago or longer were conducted prior to project construction to determine whether there are cultural resources within the project area. In spring 2006 J&S will conduct trenching investigations at American River RM 0.5 to determine the boundary of CA-SAC-26. Pending these results, the mitigation site will avoid CA-SAC-26 with a buffer of at least 50 feet.

The proposed project would have no effect on known prehistoric or historic resources. The possibility exists that potentially significant unidentified cultural remains could be encountered during project construction. The probability of any effects on archeological sites is considered to be very unlikely due to the past channel meandering and erosion within the river corridor. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find will be halted, and a qualified archeologist will be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR 800.13(b), “Discoveries without prior planning,” would be implemented. Data recovery or other mitigation measures might be necessary to mitigate adverse effects to significant properties.

4.10.2.2 Alternative 2

Alternative 2 would have the same effects on cultural resources as Alternative 1 listed above.

4.10.3 Mitigation

Since no cultural resources would be affected by the proposed project, no mitigation would be required.

5.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS

5.1 Cumulative Effects

Vegetation and Wildlife

Section 4.1 identifies the effects of the proposed action on vegetation and wildlife. The proposed project would halt erosion and reduce further natural recruitment of IWM from the existing riparian area on the bank. This would be offset by the installation of 1,177 linear feet of IWM and plantings that would naturally recruit IWM and provide habitat for vegetation and wildlife. The project would implement site-specific habitat and erosion measures that benefit vegetation and wildlife. The incremental effect of the proposed action is not cumulatively considerable and therefore less than significant.

Fisheries and Aquatic Habitat

Section 4.2 identifies the effects of the proposed action on fisheries and aquatic habitat. The proposed project would halt erosion and reduce further natural recruitment of IWM from the existing riparian area on the bank. This would be offset by the installation 1,177 linear feet of IWM and plantings that would naturally recruit IWM and provide habitat for aquatic habitat. Because the project would implement site-specific habitat and erosion measures that benefit vegetation and wildlife, the incremental effect of the proposed action is not cumulatively considerable and therefore less than significant.

Special Status Species

Section 4.3 identifies the effects of the proposed action on special status species. Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, valley elderberry longhorn beetle, and green sturgeon.

Project effects also include alteration of the designated critical habitat of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

The project is not likely to affect the valley elderberry longhorn beetle with the incorporation of mitigation measures in section 4.3.4. However, it is expected that this project would affect Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, and green and Swainson's hawk. These effects would be attributed to all land development activities in the Central Valley where special status species occur. However, the cumulative effect of this and other projects is less than significant since the project and all other project actions affecting special status species are under the jurisdiction of the U.S. Fish and Wildlife Service and National Marine Fisheries Service, and subject to compensation measures required by the agencies.

Effects to other special status species by other flood control projects are expected to be less than significant since they would be regulated under Section 7 or 10 of the Federal Endangered Species Act or by the California Department of Fish and Game. These agencies would work with project proponents to compensate for their actions to a level that would reduce their effects to less than significant.

Water Quality

Section 4.4 identifies the construction-related water quality effects of the proposed action, including the potential for increased turbidity due to soil and sediment disturbance. Related effects may also occur as a result of other local projects including the lower American River levee improvements and future Sacramento River Bank Protection Projects. Such effects could result from all land development activities within the local watershed area.

Minimizing construction-related water quality effects is required by the Clean Water Act. The program for implementing Clean Water Act requirements is managed locally by the Central Valley Regional Water Quality Control Board (RWQCB), and projects are required to comply with the statewide permit for general construction activity. This typically involves the implementation of site-specific stormwater best management practices, SWPPP, to avoid and minimize the release of stormwater to offsite receiving waters. Such best management practices are proposed as mitigation for soil and sediment disturbance under the proposed action. Because the project would implement site-specific mitigation consistent with the RWQCB program, the incremental effect of the proposed action is not cumulatively considerable and therefore less than significant.

Air Quality

As described in Section 4.5, the proposed action would result in construction-related effects on air quality. Construction of levee improvements, dam raise, and bridge construction would have similar air quality effects because of the substantial amount of earthmoving activity involved. All projects would generate criteria pollutants such as NO_x, ROG, PM₁₀, and CO. In fact, all construction activity within the air basin would contribute to current air quality

violations in the same way as the proposed action. Because of the nonattainment status of the air basin, additional contributions are potentially significant cumulative effects.

Mitigation for the proposed action consists of best management practices and the implementation of offsite mitigation including dust control, requiring the contractor to properly tune and maintain construction equipment, payment of \$129,744.00 for exceedence of 159 lbs above the 85lbs/day or 9.5 tons during the construction of the project for reductions of NO_x from mobile source construction equipment, and the purchase of additional air quality credits, if necessary. Since thresholds are exceeded and mitigated by the offset of other mobile source and stationary source emitters, the project's incremental contribution to the significant cumulative effect is not cumulatively considerable and therefore less than significant.

Noise

As described in Section 4.6 the project would not have a significant effect on noise and therefore would not contribute to any cumulative effect on noise.

Traffic

As described in Section 4.7 the project would not have a significant effect on traffic and therefore would not contribute to any cumulative effect on traffic. A traffic control plan will be implemented as described in Section 4.7.4 Mitigation. Because the project-specific effects are less than significant, cumulative effects would be less than significant as well.

Recreation and Navigation Safety

As described in Section 4.8 project-specific effects would not have a significant effect on recreation and navigation. No other projects have been identified that would contribute to reduction in recreation opportunities on the Sacramento and American River. The loss of recreational opportunities along the Pocket area would be temporary. The dock at RM 50.8 would be relocated up river outside the project boundary and away from the rock revetment. Because the project-specific effects are less than significant, cumulative effects would be less than significant as well.

Esthetics/Visual Resources

As described in Section 4.9 the project would not have a significant effect on esthetics or visual resources, and therefore would not contribute to any cumulative effect on visual resources and esthetics.

Cultural Resources

Project specific effects on cultural resources are described in Section 4.10. No other projects have been identified that would contribute to a reduction or destruction of cultural resources at the Pocket area. Because the project-specific effects are less than significant, cumulative effects would be less than significant as well.

5.2 Other Local Projects

American River Common Features-Pocket Geotech Project

The project entails repairs to two sections (Reaches 2 and 9) of the levee in the Pocket area to correct through-seepage and under-seepage in order to receive Federal Emergency Management Agency certification for the levee system. Reach 2 extends from RM 52.1 to RM 52.4, and Reach 9 extends from RM 45.5 to RM 45.7. The project will be conducted in partnership between the Corps, the Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA) under the American River Common Features Project. Construction is expected to begin in July 2006 and end by October 2006.

The levee repairs will require the construction of cutoff walls to alleviate the seepage problems. The two alternatives being considered for construction are a bentonite slurry wall or deep soil mixing (DSM). Due to the depth of the proposed cutoff wall in Reach 2 (110 feet), DSM is the only method capable of reaching that depth. The through-seepage in Reach 9, however, will only require a cutoff wall to a depth of 40 feet. Both DSM and the slurry wall technique are being evaluated for accomplishing this repair. This project will be conducted during the erosion site repair but will not interfere with any construction activities related to the erosion sites.

Long-Term Reoperation of Folsom Reservoir

The current approved flood-control diagram for Folsom Reservoir requires 400,000 acre-feet of flood storage capacity during the flood season. However, the reservoir is currently operated for additional flood storage capacity through an agreement between the U.S. Bureau of Reclamation and the SAFCA. This “interim reoperation” requires a variable flood storage capacity of 400,000 to 670,000 acre-feet, depending on upstream storage conditions. A long-term reoperation plan is currently being prepared to update the approved flood control diagram to a variable 400,000 to 600,000 acre-feet of required flood storage capacity. An additional component of the long-term reoperation plan is to reconfigure the penstock intake shutters to a 1-1-2-2-3 configuration. An Environmental Impact Report was recently prepared by SAFCA for this action (SAFCA, 2000). Quantitative analysis of operational changes in this EIR focused on the change from a fixed 400,000 acre-foot flood control diagram (1-1-7 shutter configuration) to a variable 400,000 to 600,000 acre-foot diagram (1-1-2-2-3 shutter configuration). The assumptions for this analysis included the completion of the outlet modifications and surcharge storage projects.

Folsom Dam Mini Raise

The Corps through the construction of the Folsom Dam Mini Raise plan would strengthen the dam and reduce the annual probability of flooding in Sacramento from 1 in 90 to 1 in 230 when implementing other authorized components of the American River Watershed Project. It also includes environmental restoration features for wildlife habitat along the lower American River Parkway. In addition, temperature control shutters at Folsom Dam would be

mechanized to improve the regulation of water temperature to increase native salmon and steelhead populations.

Folsom Bridge Project

The Corps will be constructing a new bridge downstream of Folsom Dam Road. Part of the American River Watershed Project, the new bridge will alleviate traffic congestion in downtown Folsom associated with the closure of Folsom Dam Road. The road formerly accommodated 18,000 vehicles a day. Construction is scheduled to begin in 2006 and be completed in 2007.

Folsom Dam Advanced Release

The Corps in coordination with the Department of Interior is in the process of updating the Flood Management Plan for Folsom Dam to increase flood protection through increased release capacity generated by the modification of the outlets at Folsom Dam. Dam releases would be increased based on the Advanced Hydrologic Prediction System of the National Weather Service.

Lower American River Common Features Project

The Corps, SAFCA, and the Rec Board are implementing ongoing programs for levee stability in the lower American River and elsewhere in the Sacramento area. The lower American River levee projects are being implemented pursuant to the WRDA 96 and WRDA 99 authorizations and other programs. Substantial levee improvement work is currently underway.

Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP is a long-range program of bank protection authorized by the Flood Control Act of 1960. The SRBPP directs the Corps to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1996, erosion control projects at five sites covering almost 2 miles of the south and north banks of the lower American River have been implemented. Additional sites at RM 149 L and 56.7 L on the Sacramento River totaling one half mile have been constructed since 2001. On going design for approximately one mile of bank protection in the "Pocket" is the subject of this document. This SRBPP is an ongoing project, and additional sites requiring bank protection will continue to be identified and repaired indefinitely until the remaining authority of approximately 30,000 linear feet is exhausted.

5.3 Growth-Inducing Effects

In general, the project would not directly remove obstacles to growth, result in population increases, or encourage and facilitate other activities that could significantly affect the environment. New development must be consistent with existing City and County general plan

policies and zoning ordinances regarding land use, open space, conservation, flood protection, and public health and safety. In addition, all development would need to comply with applicable environmental laws and regulations and would require approval by local authorities.

6.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

6.1 Federal Requirements

Endangered Species Act (16 U.S.C. 1531 et seq.). A list of threatened and endangered species that may be in the project area was obtained from the USFWS on May 16, 2005, and updated on February 1, 2006 (Appendix A). The Corps concluded that the proposed action is likely to adversely affect the valley elderberry longhorn beetle, delta smelt, Central Valley steelhead, Central Valley fall/late-fall run Chinook salmon, or the winter-run Chinook salmon. The Corps initiated formal consultation with the USFWS and NMFS in February 2006 and is awaiting their biological opinions.

Clean Water Act (33 U.S.C. 1251 et seq. (1976 & SUPP II 1978)). The proposed action includes placement of materials in the waters of the United States. Sediment removal may result in the temporary resuspension of sediments in the nearby area. A section 401 water quality certification application addressing these activities is included in Appendix C and the 404(b) (1) evaluation for the project is included as Appendix D.

Clean Air Act (42 U.S.C. 1857 et seq.), as amended and recodified (U.S.C. 7401 et seq. (SUPP II 1978)). The Corps has completed an analysis of air quality effects of the project. The proposed action would potentially exceed local air quality standards; and however, the project would not exceed the Federal de minimus criteria. A payment of \$129,744.00 would be made to the SMAQMD to offset future emissions. Air quality emissions data is included in Appendix E.

Magnuson-Stevens Fishery Conservation and Management Act. Chinook salmon species that may be affected by this project are covered under fishery management plan. The Corps has determined that this project will adversely affect Essential Fish Habitat and require a consultation under the Magnuson-Stevens Fishery Conservation and Management Act (consultation was initiated during February 2006).

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). The Corps is currently awaiting a draft Fish and Wildlife Coordination Act Report (CAR) from the Sacramento USFWS office and the FONSI will not be signed until the final CAR is received.

National Environmental Policy Act (42 U.S.C. 4321 et seq.). This draft EA/IS and the draft FONSI serve as public notification of the proposed project. The public comment period is 30 days following the issuance of this document. Following the public comment period and issuance of a final EA/IS and the final FONSI, the environmental documentation required by this Act will be completed.

National Historic Preservation Act of 1996, amended (16 U.S.C. et seq.). The Corps is currently in consultation with SHPO and will be in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800) after the FONSI is signed. Letters to potentially interested Native Americans were sent on November 15, 2005, asking for their knowledge of locations of archeological sites, or areas of traditional cultural interest or concern. .

Portions of the APE including borrow sites, mitigation sites, and staging areas not previously surveyed will be surveyed before project construction. In the event that cultural resources are located within the project area, a determination of eligibility to the NRHP would be required in order to comply with the National Historic Preservation Act of 1966. If no new cultural resources are located, a letter will be sent to the SHPO seeking concurrence with the Corps' determination that the project as planned would not involve NRHP-eligible or listed properties. Then the project may proceed as planned.

Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.). The purpose of the Wild and Scenic Rivers Act is to preserve and protect wild and scenic rivers and immediate environments for the benefit of present and future generations. The lower Sacramento River has not been designated as a component of both the Federal and State Wild and Scenic Rivers systems.

The proposed action would neither adversely affect the resources for which the river was designated nor adversely affect the river's free-flowing status. All construction activities would be confined to the lower Sacramento River.

Executive Order 11988, Flood Plain Management. This executive order requires the Corps to provide leadership and take action to (1) avoid development in the base (100-year) flood plain; (2) reduce the hazards and risk associated with floods; (3) minimize the effect of floods on human safety, health, and welfare; and (4) restore and preserve the natural and beneficial values of the base flood plain. The proposed action is in compliance with this executive order.

Executive Order 11990, Protection of Wetlands. This order directs the Corps to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in implementing civil works. The proposed action is in compliance with this executive order. The proposed action would not result in the loss or degradation of any wetlands.

Executive Order 12898, Environmental Justice. Environmental justice refers to "nondiscrimination in Federal programs substantially affecting human health and the environment" and "providing minority communities and low-income communities' access to public information on, and an opportunity for public participation, matters relating to human health or the environment." In particular, it involves preventing minority and low-income communities from being subjected to disproportionately high and adverse environmental effects of Federal actions.

The proposed action is in compliance with this Executive Order. Project construction is confined to the east bank and levee along the Sacramento River and would not affect any minority or low-income communities.

Farmland Protection Policy Act (7 U.S.C. 4201 et seq.). This act requires a Federal agency to consider the effects of its actions and programs on the Nation's farmlands. The proposed action would not result in the loss of any farmland.

6.2 State of California

California Environmental Quality Act. This draft document will be adopted as a joint EA/IS following public comment and will fully comply with CEQA requirements. Adoption of a Mitigated Negative Declaration by the California Department of Water Resources following public of the Draft EA/IS would provide full compliance under CEQA. .

State Water Resources Control Board, Division of Water Quality, and California Regional Water Quality Control Board, Central Valley Region. This draft NEPA/CEQA document has been forwarded to the Regional Water Quality Control Board. The Section 401 certification under the Clean Water Act will be completed following NEPA/CEQA documentation; a water quality certification application is included in Appendix C.

State Water Resources Control Board, Division of Water Rights. The proposed action consists mainly of constructing streambank protection and facilities to construct those modifications described in the proposed action (preferred alternative). No water rights approvals would be required.

California Department of Fish and Game, Region 2. The CDFG requires a Streambed Alteration Permit for any activity that will change the natural state of any lake, river, or stream in California. Since the proposed action is a Federal project, there is no need to obtain a Streambed Alteration Agreement.

State Mining and Geology Board. The Surface Mining and Reclamation Act (SMARA) requires that an entity seeking to conduct a surface-mining operation obtain a permit from, and submit a reclamation plan to, the SMARA lead agency overseeing that operation. The proposed action does not involve any activities that might potentially be classified as surface mining. Riprap material will be imported from a commercial quarry site. Soil and fill will be purchased from a commercial distributor.

State Lands Commission. The State Lands Commission has exclusive jurisdiction over all ungranted tidelands and submerged lands owned by the State and the beds of navigable rivers, sloughs, and lakes. A project cannot use these State lands unless a lease is first obtained from the State Lands Commission. The SRBPP has a Master Lease PRC 7203.9 approved by the Commission on May 16, 1988 for bank protection work. Each new bank protection project such as those proposed for the Pocket area require an amendment to this lease. An application for such an amendment will be submitted during April 2006.

6.3 Local Plans, Policies, and Permits

Sacramento Metropolitan Air Quality Management District. Air quality analysis based on coordination with the Sacramento Air Quality Management District shows that project emissions would exceed daily thresholds for NO_x. The Corps' contractor will submit a fee payment of \$129,744.00 to the SMAQMD to offset future emissions. Air quality emissions data is included in Appendix E. However, since the project is located in a non-attainment area, best management practices for ozone and particulate matter would be implemented to help protect ambient air quality conditions. Accordingly, the project is in compliance with the local air district standards after mitigation and fees are paid.

7.0 COORDINATION AND REVIEW OF THE DRAFT EA/IS

The Draft EA/IS will be circulated for 30 days to agencies, organizations, and individuals known to have a special interest in the proposed action. Comments will be received and incorporated into the final EA/IS, as appropriate. This project is being coordinated with all relevant government agencies and organizations including the USFWS, NOAA Fisheries, SHPO, California Department of Fish and Game, RecBd, SAFCA, and County of Sacramento.

8.0 FINDINGS

Based on the information in this Draft EA/IS, the Corps finds that the proposed action would not result in significant effects on the quality of the human environment and therefore does not require preparation of an environmental impact statement. A FONSI has been prepared and accompanies this Draft EA/IS.

9.0 LIST OF PREPARERS

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State Department of Water Resources

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Plates

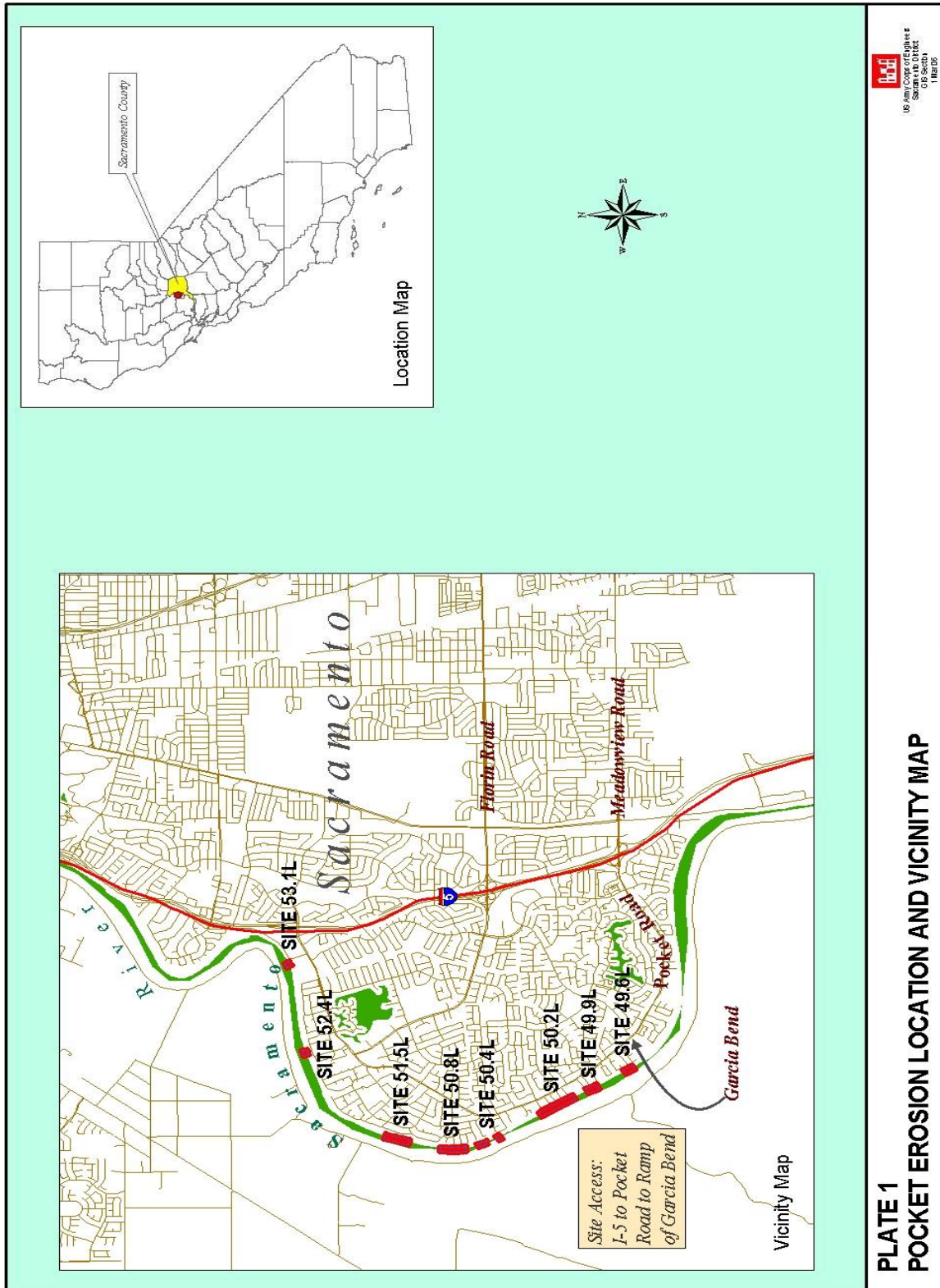


PLATE 1
POCKET EROSION LOCATION AND VICINITY MAP

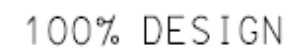






**PLATE 2-3
DETAILED PROJECT AND PLAN VIEW MAP**

US Army Corps of Engineers
Sacramento District
GIS Section
9 Mar 06





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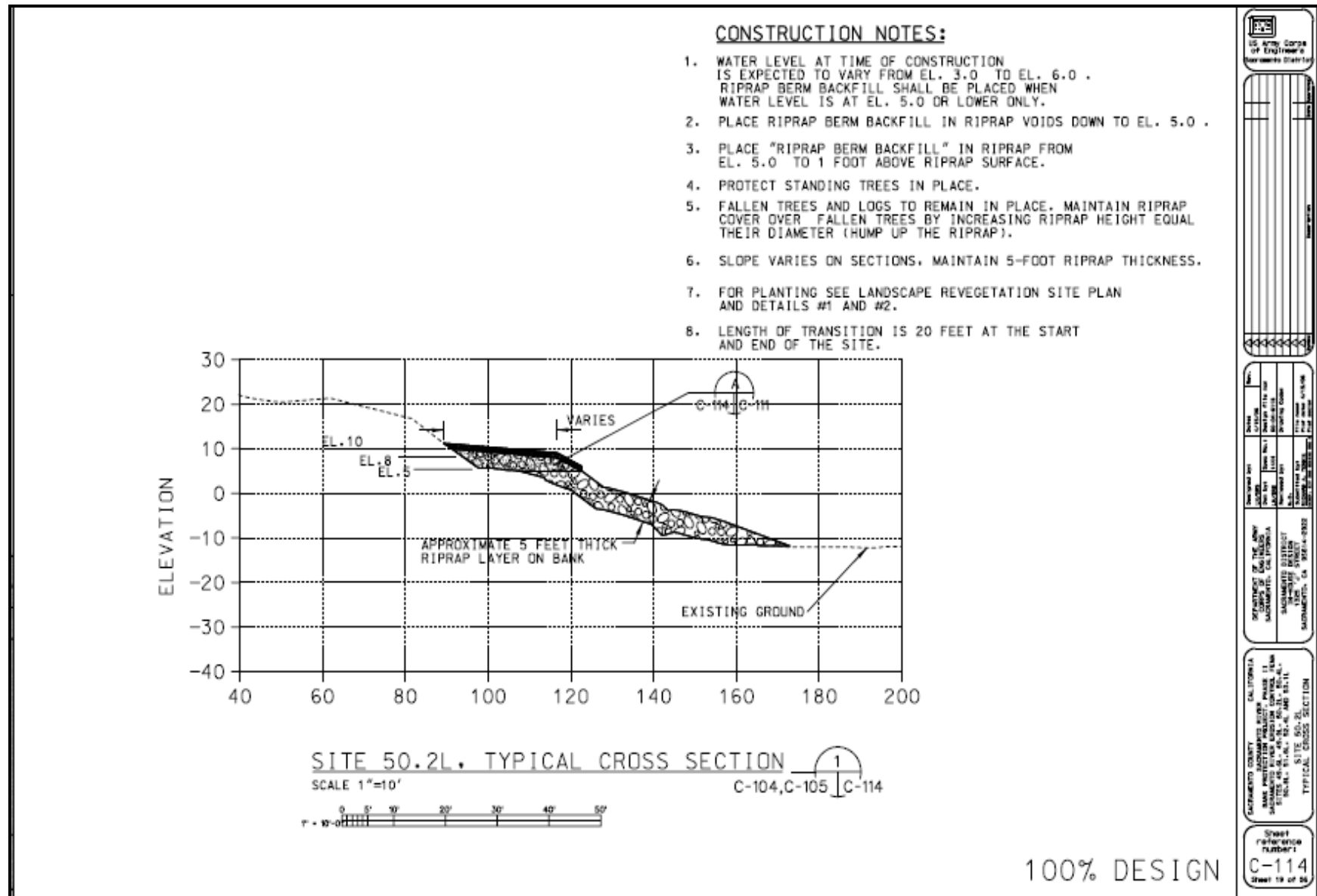


Plate 5. RM 50.2 Typical Cross Section



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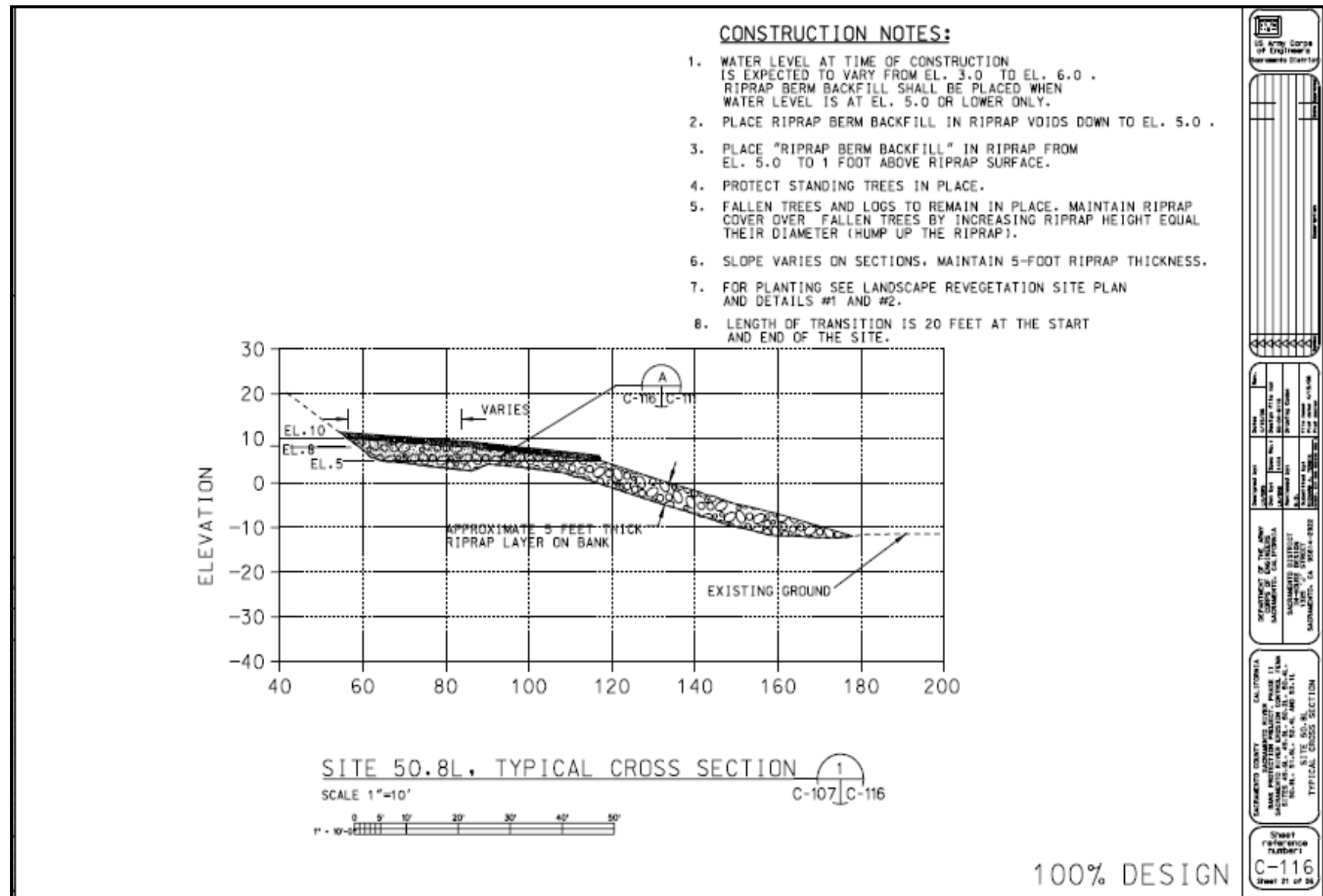


Plate 7. RM 50.8 Typical Cross Section

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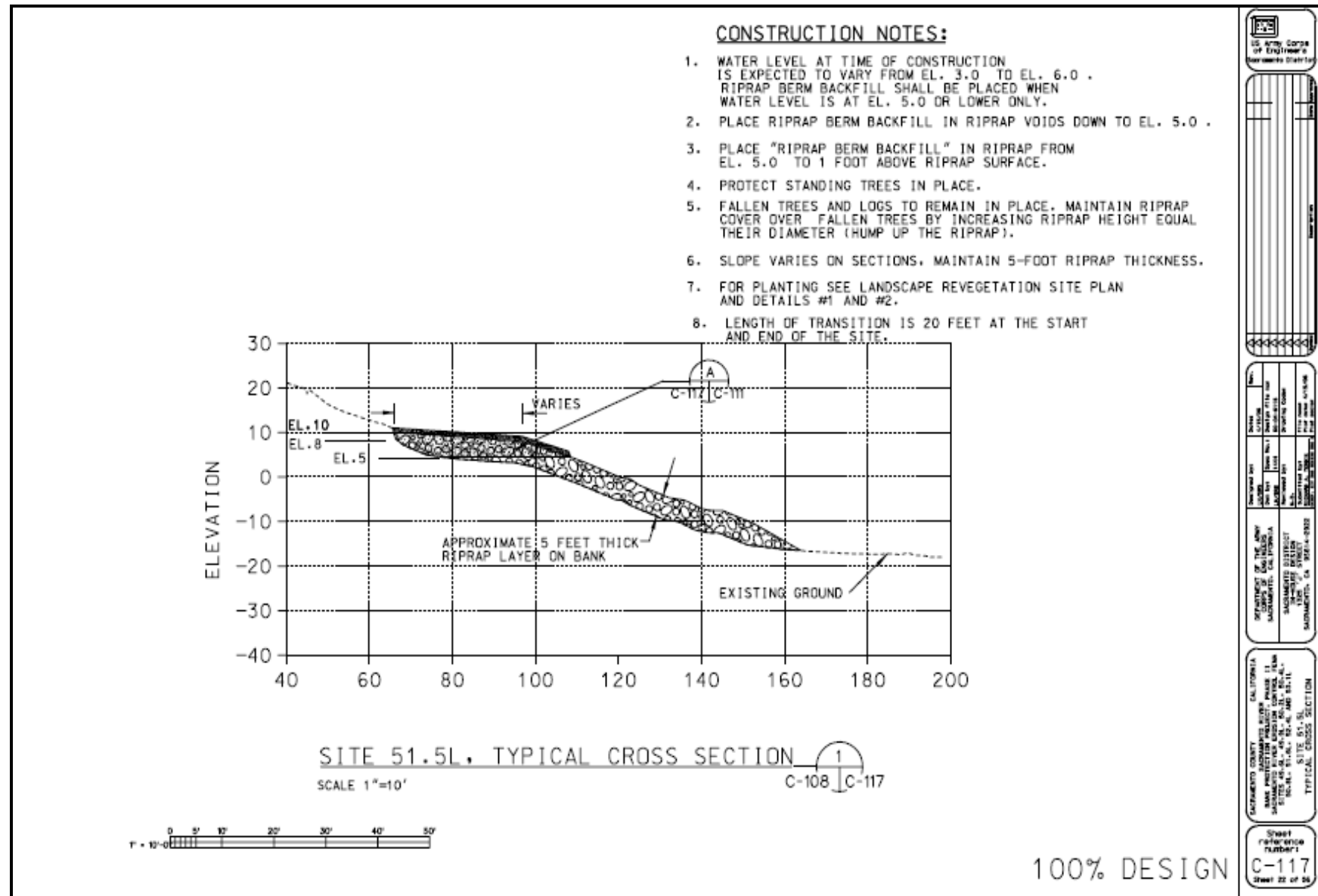
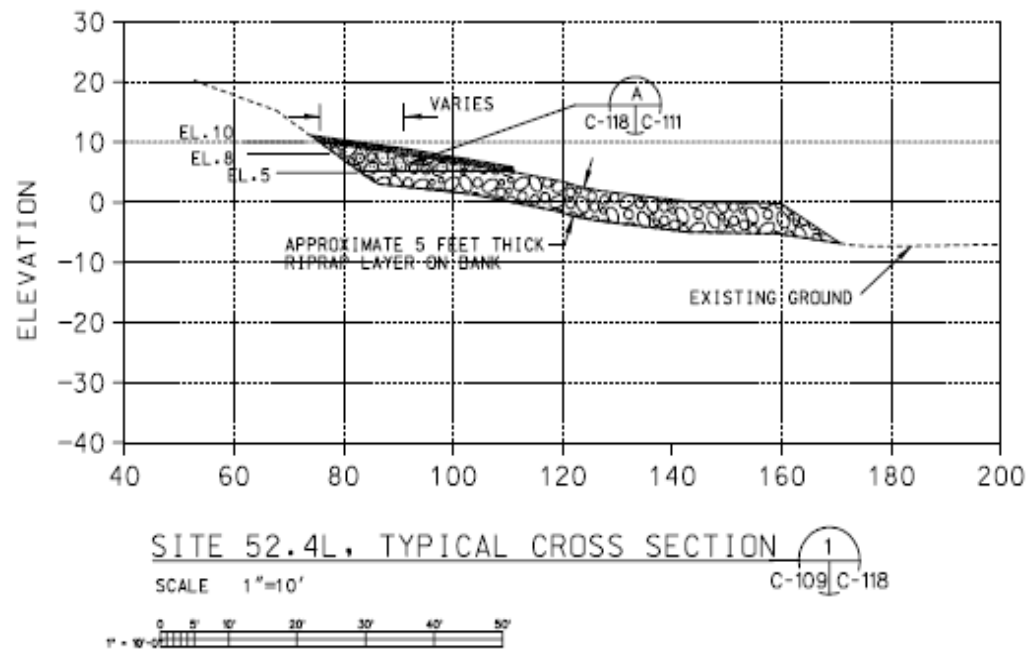


Plate 8. RM 51.5 Typical Cross Section

CONSTRUCTION NOTES:

1. WATER LEVEL AT TIME OF CONSTRUCTION IS EXPECTED TO VARY FROM EL. 3.0 TO EL. 6.0 . RIPRAP BERM BACKFILL SHALL BE PLACED WHEN WATER LEVEL IS AT EL. 5.0 OR LOWER ONLY.
2. PLACE RIPRAP BERM BACKFILL IN RIPRAP VOIDS DOWN TO EL. 5.0 .
3. PLACE "RIPRAP BERM BACKFILL" IN RIPRAP FROM EL. 5.0 TO 1 FOOT ABOVE RIPRAP SURFACE.
4. PROTECT STANDING TREES IN PLACE.
5. FALLEN TREES AND LOGS TO REMAIN IN PLACE. MAINTAIN RIPRAP COVER OVER FALLEN TREES BY INCREASING RIPRAP HEIGHT EQUAL THEIR DIAMETER (HUMP UP THE RIPRAP).
6. SLOPE VARIES ON SECTIONS, MAINTAIN 5-FOOT RIPRAP THICKNESS.
7. FOR PLANTING SEE LANDSCAPE REVEGETATION SITE PLAN AND DETAILS #1 AND #2.
8. LENGTH OF TRANSITION IS 20 FEET AT THE START AND END OF THE SITE.



100% DESIGN

US Army Corps of Engineers Sacramento District	
Project No. _____ Drawing No. _____ Revision No. _____ Date _____	
Design by _____ Checked by _____ Approved by _____	Date _____ Title _____ Station _____ Project _____
DEPARTMENT OF THE ARMY OFFICE OF THE DISTRICT ENGINEER SACRAMENTO DISTRICT 1200 J STREET SACRAMENTO, CA 95834-0002	
SACRAMENTO COUNTY, CALIFORNIA BANK PROTECTION PROJECT, PHASE II SACRAMENTO RIVER EROSION CONTROL, E.L. 100.0 - 11.0 - 12.0 - 13.0 - 14.0 TYPICAL CROSS SECTION	
Sheet reference number C-118 Sheet 23 of 24	

Plate 9. RM 52.4 Typical Cross Section



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Appendix A. USFWS Species List

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 060201100847

Database Last Updated: December 23, 2005

CRITICAL HABITAT:

On August 11, 2005, the Service published a revised [critical habitat designation](#) for vernal pool species. It did not specify critical habitat locations on a species by species basis. If there are species on the list(s) below that were covered under the rule, they are shown because we believe that they are present in the area or may be affected by projects in the area, not because it has specifically been designated as critical habitat for them.

Quad List: SACRAMENTO WEST (513D)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardii - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)

Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)

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Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central population (T)

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Acipenser medirostris - green sturgeon (P)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)

Anthicus sacramento - Sacramento anthicid beetle (SC)

Branchinecta mesoacensis - Midvalley fairy shrimp (SC)

Linderiella occidentalis - California linderiella fairy shrimp (SC)

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Fish

Lampetra ayresi - river lamprey (SC)

Lampetra tridentata - Pacific lamprey (SC)

Pogonichthys macrolepidotus - Sacramento splittail (SC)

Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondi (was *Scaphiopus* h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)

Athene cunicularia hypugaea - western burrowing owl (SC)

Baeolophus inornatus - oak titmouse (SLC)

Branta canadensis leucopareia - Aleutian Canada goose (D)

Buteo regalis - ferruginous hawk (SC)

Buteo Swainsoni - Swainson's hawk (CA)

Carduelis lawrencei - Lawrence's goldfinch (SC)

Chaetura vauxi - Vaux's swift (SC)

Charadrius montanus - mountain plover (SC)

Elanus leucurus - white-tailed (=black shouldered) kite (SC)

Empidonax traillii brewsteri - little willow flycatcher (CA)

Falco peregrinus anatum - American peregrine falcon (D)

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Grus canadensis tabida - greater sandhill crane (CA)

Lanius ludovicianus - loggerhead shrike (SC)

Melanerpes lewis - Lewis' woodpecker (SC)

Numenius americanus - long-billed curlew (SC)

Picoides nuttallii - Nuttall's woodpecker (SLC)

Plegadis chihi - white-faced ibis (SC)

Riparia riparia - bank swallow (CA)

Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)

Myotis ciliolabrum - small-footed myotis bat (SC)

Myotis volans - long-legged myotis bat (SC)

Myotis yumanensis - Yuma myotis bat (SC)

Perognathus inornatus - San Joaquin pocket mouse (SC)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed (in the Federal Register) as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed (in the Federal Register) for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Marine Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.

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- (CA) Listed by the State of California but not by the Fish & Wildlife Service.
- (D) Delisted - Species will be monitored for 5 years.
- (SC) Species of Concern/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey [7½ minute quads](#). The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game [Wildlife and Habitat Data Analysis Branch](#) for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

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Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [critical habitat page](#) for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 02, 2006.

Appendix B. Table of Special Status Plant and Animal Species Potential to Occur in the Project Area

Plants and Trees	Status			Range	Habitat	Potential Onsite Presence
	Federal	State	Other			
Northern California black walnut (native stands) <i>Juglans californica</i> var. <i>hindsii</i>	SC	–	1B, CSC	Native stands in Contra Costa, Napa, Sacramento*, Solano*, and Yolo* Counties	Riparian scrub and woodland: 150–2,700 feet	Scattered trees occur at the project site but not as entire stands.
Rose Mallow <i>Hibiscus lasiocarpus</i>	–	–	2	Southern Sacramento Valley, Sacramento–San Joaquin Delta, northeast San Francisco Bay area, and Alameda, Contra Costa, Marin*, Napa, Sacramento, San Joaquin, and Solano Counties	Freshwater marshes, swamps on low peat islands next to sloughs, streambanks in riparian zones: generally sea level–500 feet	No suitable habitat in the project area.

Notes:

CNDDDB= California Natural Diversity Database.

Species included in this table are based on search results of the CNDDDB (2004), lists provided by the U.S. Fish and Wildlife Service (USFWS) (2005), and field surveys conducted in the project area during 2004 and 2005. Only species from these sources with suitable habitat in the study area are included in this table.

a Status

– = not listed.

Federal

SC = USFWS Species of Special Concern.

State

CE = Listed as endangered under the California Endangered Species Act.

R = Listed as rare under California Native Plant Protection Act.

Other

California Native Plant Society (CNPS)

1B = CNPS List 1B—rare or endangered in California and elsewhere

2 = CNPS List 2—rare or endangered in California, more common elsewhere

	Status ¹	Range	Habitat	Potential Onsite Presence
	Federal/State			
Mammals				
Long-legged myotis <i>Myotis volans</i>	SC/–	Mountains throughout California, including ranges in the Mojave desert.	Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet.	No suitable habitat in the project area.
Pacific west big-eared bat <i>Plecotus pallescens townsendii</i>	SC/CSC	Coastal regions from Del Norte County south to Santa Barbara County.	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings. Very sensitive to disturbances and may abandon a roost after one onsite visit.	Outside the species known range.
San Joaquin Valley woodrat <i>Neotoma fuscipes riparia</i>	E/CSC	Historical distribution along the San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San Joaquin, Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis.	Riparian habitats with dense shrub cover, willow thickets, and an oak overstory.	Outside the species known range.
San Joaquin pocket mouse <i>Perognathus inornatus</i>	SC/–	Occurs throughout the San Joaquin Valley and in the Salinas Valley.	Favors grasslands and scrub habitats with fine textured soils.	Outside the species known range.
Small-footed myotis <i>Myotis ciliolabrum</i>	SC/–	Occurs in the Sierra Nevada, south Coast, Transverse, and Peninsular Ranges, and in the Great Basin.	Open stands in forests and woodlands, as well as shrub lands and desert scrub. Uses caves, crevices, trees, and abandoned buildings.	No suitable habitat in the project area.
Yuma myotis <i>Myotis yumanensis</i>	SC/–	Common and widespread throughout most of California except the Colorado and Mojave deserts near water bodies.	Found in a wide variety of habitats from sea level to 11,000 feet, but uncommon above 8,000 feet. Optimal habitat is open forests and woodlands.	No suitable habitat in the project area.
Riparian Brush Rabbit <i>Sylvilagus bachmani riparius</i>	E/E	Historical distribution along the San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San Joaquin, Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis.	Riparian habitats with dense scrub/shrub cover, willow thickets, and an oak overstory. Brush rabbits have small home ranges that usually conform to the size of available brushy habitat. Avoiding large openings in shrub cover, they frequent small clearings.	No suitable habitat in the project area.
Birds				

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Aleutian Canada goose <i>Branta canadensis leucopareia</i>	SC/D	The entire population winters in Butte Sink, then moves to Los Banos, Modesto, the Delta, and East Bay reservoirs; stages near Crescent City during spring before migrating to breeding grounds.	Roosts in large marshes, flooded fields, stock ponds, and reservoirs; forages in pastures, meadows, and harvested grainfields; corn is especially preferred.	No suitable habitat in the project area.
American peregrine falcon <i>Falco peregrinus anatum</i>	D/CE, FP	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range.	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations.	May occur in the project area during migration or winter.
Bald eagle <i>Haliaeetus leucocephalus</i>	T, PR/CE, FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.	May occur in the project area during migration or winter.
Bank swallow <i>Riparia riparia</i>	SC/CT	Occurs along the Sacramento River from Tahoma to Sacramento Counties, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou. Small populations near the coast from San Francisco to Monterey.	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam.	No suitable habitat in the project area.
Cooper's hawk <i>Accipiter cooperii</i>	SC/-	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range.	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests.	Suitable habitat present in the project area.
Ferruginous hawk <i>Buteo regalis</i>	SC/CSC	Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, east-	Open terrain in plains and foothills where ground squirrels and other prey are available.	No suitable habitat in the project area.

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		ward to the Sierra Nevada foothills and south-eastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County.		
Greater sandhill crane <i>Grus canadensis tabida</i>	SC/CT, FP	Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra Counties. Winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve.	Summers in open terrain near shallow lakes or freshwater marshes. Winters in plains and valleys near bodies of fresh water.	No suitable habitat in the project area.
Lawrence's goldfinch <i>Carduelis lawrencei</i>	SC/CSC	Erratic and localized in occurrence in foothills surrounding the Central Valley, Santa Clara County, coastal slope south of Monterey County, and along the western edge of the southern California deserts.	Occurs in open oak and other arid woodland and chaparral habitats near water.	May occur in the project area during migration.
Lewis' woodpecker <i>Melanerpes lewis</i>	SC/CSC	Breeds locally on eastern slopes of the Coast Ranges and in the Sierra Nevada, Cascade Range, and Klamath and Warner Mountains. Uncommon winter resident in the Central Valley.	Occurs in open oak savanna, deciduous, and coniferous habitats.	May occur in the project area during migration.
Little willow flycatcher <i>Empidonax traillii brewsteri</i>	SC/CE	Summers along the western Sierra Nevada from El Dorado to Madera County, in the Cascade and northern Sierra Nevada in Trinity, Shasta, Tahama, Butte, and Plumas Counties, and along the eastern Sierra Nevada from Lassen to Inyo County.	Riparian areas and large wet meadows with abundant willows. Usually found in riparian habitats during migration.	No suitable breeding habitat in the project area. May occur in the project area during migration.
Loggerhead shrike <i>Lanius ludovicianus</i>	SC/CSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter.	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Suitable habitat present in the project area
Long-billed curlew <i>Numenius americanus</i>	SC/CSC	Nests in northeastern California in Modoc, Siskiyou, and Lassen Counties. Winters along the coast and in interior valleys west of Sierra Nevada.	Nests in high-elevation grasslands adjacent to lakes or marshes. During migration and in winter; frequents coastal beaches and mudflats and interior grasslands and agricultural fields.	No suitable habitat in the project area.
Mountain plover	SC/CSC	Does not breed in California; in winter,	Occupies open plains or rolling hills	No suitable habitat

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<i>Charadrius montanu</i>		found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties .	with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields.	in the project area.
Nuttall's woodpecker <i>Picoides nuttallii</i>	SLC/CSC	Occurs throughout the Central Valley, the Coast, Transverse, and Peninsular Ranges, and in lower elevations in the Cascade and Sierra Nevada Ranges.	Occurs primarily in oak and riparian habitats and urban areas with suitable foraging and nesting habitat.	Suitable habitat present in the project area.
Oak titmouse <i>Baeolophus inornatus</i>	SLC/CSC	Occurs in Cismontane California from the Mexican border to Humboldt County.	Occurs in riparian, montane hardwood, valley foothill hardwood/conifer habitats.	Suitable habitat present in the project area.
Prairie falcon <i>Falco mexicanus</i>	–/CSC	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade Ranges, the southeastern deserts, Inyo-White Mountains, foothills surrounding the Central Valley, and in the Sierra Nevada in Modoc, Lassen, and Plumas Counties. Winters in the Central Valley, along the coast from Santa Barbara County to San Diego County, and in Marin, Sonoma, Humboldt, Del Norte, and Inyo Counties		No suitable habitat in the project area.
Rufous hummingbird <i>Selasphorus rufus</i>	SC/CSC	Uncommon summer resident in California and a common summer resident in Oregon and Washington. In California this species breeds in the Trinity Mountains of Trinity and Humboldt Counties.	Occurs in a variety of habitats including valley foothill hardwood, riparian, mixed hardwood/pine, chaparral and mountain meadows.	May occur in the project area during migration.
Swainson's hawk <i>Buteo swainsoni</i>	SC/CT	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	Suitable habitat present in the project area.
Tricolored blackbird <i>Agelaius tricolor</i>	SC/CSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and	No suitable habitat in the project area.

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		San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties.	grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	
Vaux's swift <i>Chaetura vauxi</i>	SC/CSC	Coastal belt from Del Norte County south to Santa Cruz County and in mid elevation forests of the Sierra Nevada and Cascade Range.	Nests in hollow, burned-out tree trunks in large conifers.	May occur in the project area during migration.
Western burrowing owl <i>Athene cunicularia hypugea</i>	SC/CSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	No suitable habitat in the project area.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	C/CE	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers.	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant.	No suitable habitat in the project area.
White-faced ibis <i>Plegadis chihi</i>	SC/CSC	Both resident and winter populations on the Salton Sea and in isolated areas in Imperial, San Diego, Ventura, and Fresno Counties; breeds at Honey Lake, Lassen County, at Mendota Wildlife Management Area, Fresno County, and near Woodland, Yolo County.	Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields, especially flooded rice fields.	No suitable habitat in the project area.
White-tailed kite <i>Elanus leucurus</i>	SC/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Species known to occur in the project area.
Reptiles				
California horned lizard <i>Phrynosoma coronatum frontale</i>	SC/CSC	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chaparral habitats.	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent. Grasslands and deserts to dwarf shrub habitats above tree line.	No suitable habitat in the project area.
Giant garter snake	T/CT	Central Valley from the vicinity of	Sloughs, canals, low gradient	No suitable habitat

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<i>Thamnophis gigas</i>		Burrell in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno.	streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	in the project area.
Western pond turtle <i>Clemmys marmorata</i>	SC/CSC	Northwestern subspecies occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada. Southwestern subspecies occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food.	No suitable habitat in the project area.
Amphibians				
California red-legged frog <i>Rana aurora draytonii</i>	T/CSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods.	Outside the species known range. No suitable habitat in the project area.
California tiger salamander <i>Ambystoma californiense</i>	T/CSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	No suitable habitat in the project area.
Western spadefoot <i>Scaphiopus hammondi</i>	SC/CSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	No suitable habitat in the project area.
Invertebrates				
Antioch Dunes anthicid	SC/-	Population in Antioch Dunes believed	Loose sand on sand bars and sand	Outside the species'

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beetle <i>Anthicus anthiochensis</i>		extinct; Now known only from Grand Island and in and around Sandy Beach County Park, Sacramento County.	dunes.	known range. No suitable habitat in the project area.
California linderiella <i>Linderiella occidentalis</i>	SC/–			No suitable habitat in the project area.
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/–	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties.	Large, deep vernal pools in annual grasslands.	No suitable habitat in the project area.
Mid-valley fairy shrimp <i>Brachinecta</i> sp.	SC/–			No suitable habitat in the project area.
Sacramento anthicid beetle <i>Anthicus sacramento</i>	SC/–	Dune areas at mouth of Sacramento River; western tip of Grand Island, Sacramento County; upper Putah Creek and dunes near Rio Vista, Solano County; Ord Ferry Bridge, Butte County.	Found in sand slip-faces among willows; associated with riparian and other aquatic habitats.	No suitable habitat in the project area.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/–	Streamside habitats below 3,000 feet throughout the Central Valley.	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	Within the species known range. Suitable habitat may be present in the project area.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools.	No suitable habitat in the project area.
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	E/–	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	No suitable habitat in the project area.
Fish				
Sacramento River Winter-Run Chinook salmon <i>Oncorhynchus tshawytscha</i>	E/E	Sacramento River	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Within the species known range. Rearing and migratory habitat present in the project area.
Central Valley spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	T/T	Sacramento, Feather, and Yuba Rivers, Deer, Mill, Butte, and Big Chico Creeks	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; migrate to the ocean to feed and grow until sexually	Within the species known range. Rearing and migratory habitat present in the

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			mature.	project area.
Central Valley late fall/fall-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	C/CSC	Sacramento River and its tributaries, San Joaquin River and its tributaries	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Within the species known range. Rearing and migratory habitat present in the project area.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	T/CSC	Sacramento River and its tributaries, San Joaquin River and its tributaries	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; migrate to the ocean to feed and grow until sexually mature.	Within the species known range. Rearing and migratory habitat present in the project area.
Delta smelt <i>Hypomesus transpacificus</i>	T/T	Sacramento–San Joaquin Delta, and into the lower reaches of each river	Estuarine or brackish waters to 14 parts per thousand (ppt); spawn in shallow brackish water upstream of the mixing zone (zone of saltwater-freshwater interface) where salinity is around 2 ppt	At the upper end of the species range. Only occasionally present.
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	D/CSC	Sacramento–San Joaquin Delta, lower portions of the Sacramento and San Joaquin rivers	Primarily low salinity shallow water; shallow, flooded vegetated habitat for spawning and foraging	Within the species known range.
Green sturgeon <i>Acipenser medirostris</i>	C/CSC	Sacramento and Klamath Rivers	Cool water with cobble, clean sand or bedrock for spawning	Within the species known range. Suitable habitat present in the project area.

Notes:

Species listed in table are generated from the U.S. Fish and Wildlife Service (USFWS) project species list, California Department of Water Resources (DWR) field survey data, and California Natural Diversity Database (CNDDB) records. Species shown in highlight are species covered under the CALFED Bay-Delta Program (CALFED) programmatic biological opinions and the Natural Community Conservation Plan (NCCP) determination.

¹Status:

Federal

- E = Listed as endangered under the federal Endangered Species Act (ESA).
- T = Listed as threatened under ESA.
- PE = Proposed for listing as endangered under ESA.
- PT = Proposed for listing as threatened under ESA.
- C = Candidate for listing under ESA.
- SC = Species of concern under ESA

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SLC	=	Species of local concern under ESA.
D	=	Delisted. Status to be monitored for 5 years.
PR	=	Protected under the Bald and Golden Eagle Protection Act.
–	=	No federal status.
State		
CE	=	Listed as endangered under the California Endangered Species Act (CESA).
CT	=	Listed as threatened under CESA.
CCE	=	Candidate for listing as endangered under CESA.
CCT	=	Candidate for listing as threatened under CESA.
R	=	Listed as rare under California Native Plant Protection Act.
CSC	=	California species of special concern.
FP	=	Fully protected under California Fish and Game Code.
SB	=	Specified birds under California Fish and Game Code.
–	=	No state status.

Appendix C

401 Water Quality Certification Application

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD CENTRAL VALLEY REGION

SECTION 401 WATER QUALITY CERTIFICATION APPLICATION FORM

A minimum of \$500.00 processing fee is required however additional fees in accordance with Title 23 CCR § 2200 (a)(2) may also be required. Please use the fee calculator at <http://www.waterboards.ca.gov/cwa401/docs/dredgefillfeecalculator.xls> to determine the total fee. Please include a check payable to the **State Water Resources Control Board**. Attach additional sheets as necessary. Submit the complete form to the appropriate Regional Board office.

1. APPLICANT INFORMATION

Applicant: US Army Corps of Engineers	Agent*
Contact Name: Don Lash	Contact Name:
Address: 1325 J Street	Address:
Sacramento, CA 95814	
Phone No: 916-557-5172	Phone No:
Fax No: 916-557-7856	Fax No:

*Complete only if applicable

2. AGENT INFORMATION*

3. PROJECT DESCRIPTION

a) Project Title: Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento California
b) Project Location: Street location: <u>Along left bank levee in Pocket Area of Sacramento, between Garcia Bend Park (downriver) and Riverside Blvd./43rd Ave. (upriver)</u> [RM 49.6 to RM 53.1] Location: <u>Sacramento West USGS 7½ minute Quadrangle</u> Township: <u>8N</u> Range: <u>4E</u> Latitude: <u>38.5008°</u> Longitude: <u>121.5571°</u> *Attach site map with "waters" clearly indicated (e.g. USGS 7 ½ quadrangle map)
c) Project Description: <i>(include purpose and final goal):</i> The U.S. Army Corps of Engineers (Corps) and the State of California Reclamation Board (RecBd), with assistance from the Sacramento Area Flood Control Agency (SAFCA), propose to implement bank protection measures to prevent ongoing streambank erosion and achieve Federal Emergency Management Agency (FEMA) certification of the 100-year flood plain along the Sacramento River. Bank protection measures would be implemented at eight erosion sites located near the Pocket area (river miles [RM] 49.6 to 53.1 Left) in the city of Sacramento. The measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill on the revetment at elevations above water levels, (3) placing and preserving existing in-stream wood material (IWM) clusters for aquatic habitat and bank stabilization, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat. This project would use the D50 riprap rock revetment with an average thickness of 10 inches. The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD over a total area of 375,290 square feet (8.62 acres), (2) placement of a

1-foot-thick layer of non-engineered fill at elevations varying from 5 to 11 feet NGVD on top of the rock revetment over an area of 176,500 square feet (4.05 acres), (3) placement of 1,177 LF of IWM at elevations varying from 5 to 10 feet NGVD for aquatic habitat and bank stabilization, and (4) planting of vegetation at elevations varying from 5 to 10 feet NGVD to provide bank stabilization and riparian habitat.

Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area would be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed in and on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

Living and dead IWM would be placed along the sites at approximately 50- to 75-foot intervals to provide bank protection and aquatic habitat during winter and spring flows. This IWM would be a minimum 15 feet long and maintain a canopy minimum of 20 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the sites starting at elevations varying from 8 to 11 feet NGVD. Large potted plants would and willow cuttings be installed in larger rock voids. Standing and fallen trees at the sites would be protected in place, and all disturbed areas would be protected with erosion control measures such as hydroseeding and plug plantings.

The overall project would disturb approximately 4,440 feet of channel bank and contiguous channel bottom during construction, approximately 8.62 acres.

d) Proposed Schedule: (*start-up, duration, and completion dates*): July 1 to November 30, 2006

e) Total Project size: (*clearing, grading, other construction activities*)

8.62 acres 4,440 linear feet (*if appropriate*)

4. IMPACTED WATER BODIES

a) Name(s) of Receiving Water Body(ies): Sacramento River

b) Anticipated potential stream flow during project activity: Between 13,000 cfs and 16,000 cfs at summer to fall flows.

c) Describe potential impacts to water quality:

Effects on water quality that could result from construction activities were qualitatively evaluated on the basis of construction practices and materials to be used, the location and duration of the activities, and the potential for water-quality or beneficial-use degradation of water bodies near the proposed project. The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD. Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area may be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed on top of the rock revetment and would be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has

established. Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

d) Indicate in ACRES and LINEAR FEET (*where appropriate*) the proposed **waters of the United States** to be impacted by any discharge other than dredging, and identify the impacts(s) as permanent and/or temporary for each water body type listed below:

Water Body Type	Permanent Impacts		Temporary Impacts	
	(acres)	(linear feet)	(acres)	(linear feet)
Jurisdictional Wetland				
Riparian			1.12	4,440
Streambed unvegetated	7.50	4,440		
Lake/Reservoir				

c) Indicate the volume of the dredged material (cubic yards) to be discharged to waters of the United States: Approximately 72,800 cubic yards of rock revetment placed into the river and 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant growth) would be placed on top of the rock revetment and may be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established.

d) Indicate type(s) of material proposed to be discharged to waters of the United States: This project would use the D50 riprap rock revetment with an average thickness of 10 inches and a mixture of sand and silt suitable for plant growth.

5. COMPENSATORY MITIGATION

a) Indicate in ACRES and LINEAR FEET (*where appropriate*) the total quantity of **waters of the United States** proposed to be Created, Restored and/or Enhanced for purposes of providing Compensatory Mitigation: On-site mitigation/restoration

Water Body Type	Created		Restored		Enhanced	
	(acres)	(linear ft)	(acres)	(linear ft)	(acres)	(linear ft)
Jurisdictional Wetland						
Riparian	4.04	4,440				
Streambed						
Lake/Reservoir						

b) If contributing to a Mitigation or Conservation Bank, indicate the agency, dollar amount, acreage, and water body type (*if applicable*):

Conservation Agency _____
 \$ _____ for _____ acres of _____ (*water body type*)
 How many acres of this mitigation area qualify as waters of the United States? _____

c) Other Mitigation (*omit if not applicable*):

How many acres of this mitigation area qualify as waters of the United States? _____

d) Location of Compensatory Mitigation Site(s) (*attach map of suitable quality and detail*):

City of Area _____ County _____

Longitude/Latitude _____ Township/Range _____

6. OTHER ACTIONS/BEST MANAGEMENT PRACTICES (BMPs)

Briefly describe other actions/BMPs to be implemented to Avoid and/or Minimize impacts to waters of the United States, including preservations of habitats, erosion control measures, project scheduling, flow diversions, etc.: The Corps would implement a Storm Water Pollution Prevention Plan before and during construction to minimize turbidity generating activities. The Corps will monitor turbidity and settleable solids to avoid violation of basin standards. The contractor would be required to develop and implement a hazardous materials management plan prior to initiation of construction. The plan would include best management practices to (1) reduce the likelihood of spills of toxic chemicals and other hazardous materials during construction, (2) describe a specific protocol for the proper handling and disposal of materials and contingency procedures to follow in the event of an accidental spill, and (3) describe a specific protocol for the proper handling and disposal of materials should materials be encountered during construction.

The specific BMPs that will be incorporated into the SWPPP will be determined during the final stages of project design. However, the SWPPP is likely to include one or more of the following standard practices, which are commonly used during the construction and postconstruction phases of levee improvement projects:

- Conduct earthwork during the dry season (July 1-November 30)
- Stage construction equipment and materials on the landside of the subject levee reaches. To the extent possible, stage equipment and materials in areas that have already been disturbed.
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
- Stockpile soil and grading spoils on the landside of the subject levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.
- Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.
- Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters. Implement a spill prevention and control plan that specifies measures that will be used to prevent, control, and clean up hazardous material spills.
- Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials may include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, may be installed as needed to stabilize disturbed areas until vegetation becomes established.

- Implementation of the BMPs specified in the erosion control plan and SWPPP would substantially reduce the potential for accelerated erosion and sedimentation to occur as a result of construction-related ground and vegetation disturbance.

7. OTHER PERMITS/AGREEMENTS/ETC

a) U.S. Army Corps of Engineers Permit

Indicate the type of ACOE permit (*check one*)

Nationwide Permit No(s) _____ Individual Permit No(s): _____ Regional Permit No(s): _____

Have you notified ACOE of project? Corps Project

Have you reviewed the General Conditions for your ACOE permit? Corps Project

Have you attached a copy of the application/notification to ACOE? See Section 404(b) (1)

Evaluation in Environmental Assessment/Initial Study

b) California Department of Fish and Game Lake or Streambed Alteration Agreement: Not Applicable. Federal Project.

Date of Application: _____

Have you attached a copy of the application?

Has the Agreement been issued? _____ if so, list Agreement number: _____

8. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

a) Indicate the type of CEQA Document required for project and Lead Agency:

Categorical Exemption _____ Negative Declaration Yes Environmental Impact Report _____

Has the document been certified/approved, or has a Notice of Exemption been filed? _____

If yes date of approval/filing _____ If no, expected approval/filing date: _____

Lead Agency Department of Water Resources – California Reclamation Board

Submit final or draft copy if available*

b) Threatened or Endangered Species impacted by this project (*list potential*): Ten special-status wildlife species occur or have the potential to occur in the project area. These species include: valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), Central Valley steelhead (*Oncorhynchus mykiss*), Sacramento River winter-run Chinook salmon (*O. tshawytscha*), Central Valley spring-run Chinook salmon (*O. tshawytscha*), delta smelt (*Hypomesus transpacificus*), green sturgeon (*Acipenser medirostris*), and late fall/fall-run Chinook salmon (*O. tshawytscha*).

9. PAST/FUTURE PROPOSALS BY THE APPLICANT

Briefly list/describe any projects carried out in the last 5 years or planned for implementation in the next 5 years that are in any way related to the proposed activity or may impact the same receiving body of water. Include the estimated adverse impacts from the past or future projects. Sacramento River Bank Protection Project 28,000 linear feet located throughout the Sacramento River Flood Control Project. This program is on-going and will incorporate similar measures for bank protection as the Pocket area erosion sites.

10. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: E. Scott Clark Title: Chief, Planning Division, USACE, Sacramento District

Signature: _____

Date: _____

Appendix D. Section 404(b) (1) Evaluation

Sacramento River Bank Protection Project, Pocket Area Erosion Sites, Sacramento California

I. Project Description

The U.S. Army Corps of Engineers (Corps) and the State of California Reclamation Board, , propose to implement bank protection measures to prevent ongoing streambank erosion and achieve Federal Emergency Management Agency (FEMA) certification of the 100-year flood plain along the Sacramento River. These sites are part of the Governor's State of Emergency Declaration on February 24, 2006.

These bank protection measures would be implemented at eight erosion sites located adjacent to the Pocket area (river miles [RM] 49.6 to 53.1) in the city of Sacramento. The measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill in and on the revetment at elevations above water levels, (3) placing and preserving existing in-stream wood material (IWM) clusters for aquatic habitat and bank stabilization, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat.

A complete project description can be found in Chapter 2 of the draft environmental assessment/initial study (EA/IS).

a. Location

The project area extends along the Sacramento River from RM 49.6 to 53.1 near the Pocket area in the city of Sacramento. The eight erosion sites are located between Riverside Avenue near the intersection with 43rd Avenue, and Garcia Bend Park. The RM locations and lengths of the eight sites are listed in Table 1.

b. General Description

The bank protection measures in the overall project would consist of (1) reinforcement of the bank toe with a total of 4,436 LF of rock revetment approximately 5 feet thick at elevations varying between minus 27 and 10 feet NGVD over a total area of 375,290 square feet (8.62 acres), (2) placement of a 1-foot-thick layer of non-engineered fill at elevations varying from 5 to 11 feet NGVD on top of the rock revetment over an area of 176,500 square feet (4.05 acres), (3) placement of 1177 LF of IWM at elevations varying from 5 to 10 feet NGVD for aquatic habitat, and (4) planting of vegetation at elevations varying from 5 to 10 feet NGVD to provide bank stabilization and riparian habitat.

Approximately 72,800 cubic yards of rock revetment would be placed along the embankment and would extend up to a maximum of 75 feet out from the riverbank. About 199,395 square feet (5.0 acres) of this rock-covered area would be below the mean summer water line. Approximately 14,100 cubic yards of fill (a mixture of sand and silt suitable for plant

growth) would be placed on top of the rock revetment and would be covered with a biodegradable coir fabric to prevent soil loss during the first high water before vegetation has established. Upon completion, the bank slopes at the sites would be 3H:1V (measured from the toe of the bank to an elevation of 10 feet NGVD) with a bench sloping from 8 to 10 feet NGVD (sloping area totals 240,280 square feet [5.52 acres]).

Existing live and dead IWM would be retained on site and supplemented with additional placement of IWM to enhance aquatic habitat during winter and spring flows. The placed IWM would be approximately 15 feet long and 10 feet wide, and would retain limbs and root wads (to the extent feasible) for maximum habitat value. Riparian trees and shrubs would be planted along the sites starting at elevations varying from 5 to 10 feet NGVD. Large potted plants would be installed in larger rock voids. Standing and fallen trees at the sites would be protected in by carefully placed rock, and all areas disturbed during construction would be treated with erosion control measures such as hydroseeding and plug plantings.

The overall project would disturb approximately 4,400 feet of channel bank and contiguous channel bottom during construction, approximately 8.62 acres.

c. Background

The Pocket area is located between the east bank of the Sacramento River below the confluence of the Sacramento and American Rivers, and Interstate 5. The area, which was once agricultural, has almost completely developed into residential neighborhoods and commercial areas over the last 30 years. The Pocket area is one of several remaining portions of Sacramento that does not have FEMA 100-year certification.

The original levees along the Sacramento River in this area were set back so that there was a minimum 50-foot bench between the existing bank and the waterside levee toe. Over the years, continual erosion of the existing river bank has threatened the stability of the levee in the Pocket area. Most of the erosion appears to be due to wave runup from tidal and wind action, as well as recreational boat traffic during the summer months. Over the years revetment has been placed along this area of by the Corps, and as maintenance by adjacent landowners, historic reclamation districts and more recently by DWR's Maintenance Area 9.

The Corps, SAFCA, DWR, and their consultants have made several field assessments for the Pocket area over the last few years. Their final assessment has determined that erosion of the banks between elevations 2 feet NGVD and 8 feet NGVD at these eight sites has undermined the bank so that it weakens and caves in during higher flow events. This project would protect these areas from further erosion while maintaining existing vegetation and IWM as much as possible. Completion of the work would also achieve FEMA certification for the Pocket area of Sacramento.

d. Authority and Purpose

This project is a component of the Sacramento River Bank Protection Project (SRBPP), which was authorized by Congress under the Flood Control Act of 1960 (Public Law 86-645).

Congress authorized the SRBPP in accordance with the recommendations of the Chief of Engineers in Senate Document No. 103, 86th Congress, Second Session, entitled “Sacramento River Flood Control Project, California,” dated May 26, 1960. Authorization for incorporation of environmental features into the project was provided in the Water Resources Development Act of 1990.

The Environmental Assessment/Initial Study (EA/IS) (1) describes the existing environmental resources in the project area, (2) evaluates the environmental effects of the alternatives on those resources, and (3) if the effects are significant, determines the need for an Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This EA/IS fulfills the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

e. General Description and Quantity of Dredged or Fill Material

(1) General Characteristics of Material

Construction of the bank protection and associated infrastructure have the potential to increase stormwater runoff, transport sediment and other construction materials, and fill portions of the Sacramento River at the project site. Riprap would be placed along approximately 4,436 linear feet of the bank to protect against toe scour. Approximately 72,800 cubic yards of rock riprap would be placed 75 feet out from the riverbank covering an area of about 5.0 acres below the mean summer water line. Approximately 4,000 linear feet of fill (a mixture of sand and silt suitable for plant growth) would be placed on top of the rock riprap and back towards the bank. Approximately 14,100 cubic yards of fill material covering about 4.05 acres from elevation 5 to 11 feet would be placed. The final configuration would result in a bank slope of 3H:1V from the current top of bank to elevation 10 feet. About 1,117 LF of IWM at elevations varying from 5 to 10 feet NGVD would be placed on top and secure to the riprap along the erosion sites for aquatic habitat and bank stabilization

(2) Source of Material

Fill materials would come from a permitted offsite commercial borrow site.

If a borrow site is selected that has not been evaluated in this document, the contractor would be responsible for providing all applicable NEPA, CEQA, and other appropriate environmental compliance.

f. Description of the Proposed Discharge Site(s)

(1) Location (map)

The location of the discharge site would be the Sacramento River at the project site.

(2) Size (acres)

The total size of the potential fill/impacted area would be almost 5.0 acres of open water.

(3) Type of Site (confined, unconfined, open water)

The fill needed for the bank protection construction would take place in open water areas.

(4) Type(s) of Habitat

Generally, the area is riparian forest and scrub/shrub, ruderal grassy and herbaceous vegetation along the levee and riverbank, and open water. Several trees have fallen into the river and provide IWM habitat for fish and other aquatic species. There is approximately 6.2 acres of riparian forest and scrub/shrub habitat, and 4.9 acres of ruderal vegetation in the affected construction zone. There are several elderberry shrubs on top of the bank and levee system in the Pocket area. However, only 1 elderberry shrub occurs within the construction area, RM 50.8. This shrub will not be removed nor will it be directly affected by project activities. Protective fencing will secure this shrub from any disturbance. Fill in the open water area would occur in a glide habitat of an "F" type stream.

(5) Timing and Duration of Discharge

The bank protection construction is anticipated to be completed in 120 days during July 1 to November 30, 2006. Fill occurring in the open water area would occur over a 120 day period during July 1 through November 30 in 2006. Should construction be delayed until 2007 this activity could occur from June through October.

h. Description of Disposal Method (hydraulic, drag line, etc.)

All of the fill work would be done from the Sacramento River by barges with crane (boom) systems mechanically dumping the rock along the shore and beneath the water line. Soil will also be distributed via crane barge. Preparation of the landscaping for plantings would most likely occur from landside along the bank using existing levee roads and staging areas adjacent to each erosion site.

II. Factual Determinations (Section 230.11)

a. Physical Substrate Determinations (consider items in Section 230.11(a# and 230.20 Substrate)

(1) Substrate Elevation and Slope

Elevation of site varies from minus 27 to 10 ft (NVGD). Existing slope varies from 5H:1V to 1H:1V

(2) Sediment Type

Soils of the site are river deposits which include silts, sands, and gravel

(3) Dredged/ Fill Material Movement

The fill material needed for the bank protection construction is not expected to move either during construction or after construction is completed. No fill material is needed for access to the construction site since construction personnel would use existing roads on the levee and the Pocket area.

(4) Physical Effects on Benthos (burial, changes in sediment type, etc.)

All of the fill associated with the construction takes place in areas of open water that are predominantly submerged (less than 5 feet NGVD). It is expected that the benthos of the river bottom areas would be completely eliminated by the fill activity.

(5) Other Effects

The installation of the fill material to complete bank protection activities would over the long-term reduce sediment input into the Sacramento River.

(6) Actions Taken to Minimize Impacts (Subpart H)

Fill material would only be placed where it is needed for bank protection. During construction, disturbance outside of the project area would be kept to a minimum. Additionally, the following best management practices from the EA/IS are included:

- The staging or storing of construction equipment or materials would be limited to the area designated by the Corps.
- The contractor would prepare an erosion and sediment control plan, incorporating a site drainage plan consistent with Regional Water Quality Control Board policies.
- Construction equipment would be maintained in proper operating condition to prevent leaks of oil or grease.
- A site-specific plan would be developed by the contractor addressing proper disposal of silt, debris, refuse, or other pollutants associated with construction.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water (refer to section 230.11(b), 230.22 Water, and 230.25 Salinity Gradients; test specified in subpart G may be required). Consider effects on:

(a) Salinity.

The fill occurring in the Sacramento River are areas of permanent water. When they receive water, it is from rain or flood events. All waters affected are freshwater and therefore, filling these areas would not adversely affect salinity.

(b) Water Chemistry (pH, etc.)

DRAFT

The fill areas are in areas of permanent water. Materials would be tested for pH prior to placement as not to affect water chemistry.

(c) Clarity

Fill would occur in areas of permanent waters. The Corps would adhere to turbidity and water chemistry requirements associated with the Corps 401 water quality permit (to be issued).

(d) Color

The proposed project is expected to affect color only during fill activities.

(e) Odor

The proposed project is not expected to affect odor.

(f) Taste

The proposed project is not expected to affect taste.

(g) Dissolved Gas Level

Fill would occur in areas of permanent waters. During filling the Corps would adhere to turbidity and water chemistry requirements associated with the Corps 401 water quality permit (to be issued).

(h) Nutrients

None of the proposed project components would adversely affect nutrients in the water.

(i) Eutrophication

Fill would occur in areas of permanent waters. During filling the Corps would adhere to turbidity and water chemistry requirements associated with the Corps 401 water quality permit.

(j) Others as Appropriate

The proposed project is not expected to affect other water characteristics.

(2) Current Patterns and Circulation (consider items in Section 230.11(b), and 230.23), Current Flow and Water Circulation

(a) Current Patterns and Flow

The proposed fill areas would not affect general current and flow patterns

(b) Velocity

The velocities of stormwater and the velocities during flood events are not expected to change with the project.

(c) Stratification

The proposed project is not expected to significantly affect stratification.

(d) Hydrologic Regime

The hydrologic regime of the stormwater runoff is not expected to change with the proposed project.

(3) Normal Water level Fluctuations (tides, river stage, etc.) (consider items in Sections 230.11(b) and 230.24)

Normal water fluctuations would not be affected. The project would not effect stage elevations.

(4) Salinity Gradients (consider items in section 230.11(b) and 230.25)

Since the fill areas receive freshwater stormwater runoff, salinity gradients would not be affected.

(5) Actions That Will Be Taken to Minimize Impacts (refer to Subpart H)

Effects to pattern or flow of stormwater runoff are not expected to be significant. Therefore, no additional minimization measures are needed that are not already defined in Subpart H.

e. Suspended Particulate/ Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site (consider items in section 230.11(c) and 230.21)

Changes in particulates and turbidity would occur during construction. There would not be significant long-term changes in suspended particulates and turbidity. It is anticipated that NTU's would increase by 5 NTU's above ambient during construction activities. It is anticipated that an increase of 15 NTU's above ambient levels would be acceptable to the RWQCB based on previous bank protection projects in the area.

The Corps' contractor will conduct water quality tests specifically for increases in turbidity and sedimentation cause by construction activities:

- Sampling location – Water samples for determining background levels shall be collected in the Sacramento River within the general vicinity for each erosion construction site. Testing to establish background levels shall be performed at least once a day when construction activity is in progress. Water samples for determining down current

conditions shall be collected in the Sacramento River at a point 5 feet out from the shoreline and 300 feet down current of each erosion site:

- Turbidity – During working hours, the construction activity shall not cause the turbidity in the Sacramento River down current from the construction sites to exceed 25 NTU's above background levels.
- Settleable Solids – During working hours, the construction activity shall not cause the settleable solids in the Sacramento River down current from the construction sites to exceed 0.5 ml/L above background levels.

(2) Effects (degree and duration) on Chemical and Physical Properties of the water Column (consider environmental values in Section 230.21, as appropriate)

(a) Light Penetration

There would not be adverse effects to light penetration.

(b) Dissolved Oxygen

There would be no adverse effects to dissolved oxygen due to the project.

(c) Toxic Metals and Organics

Due to the inertness of the fill materials, there would be no exchange of constituents between the fill and aquatic systems. Measures described in the SWPPP, prepared to RWQCB guidelines, and draft EA/IS, would minimize the potential for contaminants to be introduced into the fill areas.

(d) Pathogens

The proposed project would not introduce pathogens to the aquatic community.

(e) Esthetics

There would be esthetic effects during construction (construction equipment and general disturbance) but the effects would not be considered significant, the site would have more vegetation and IWM than the preconstruction condition.

(f) Others as Appropriate

There would be no other significant adverse effects to the chemical and physical properties of the water column.

(3) Effects on Biota (consider environmental values in Section 230.21, as appropriate)

(a) Primary Production, Photosynthesis

The project may temporarily affect primary production and photosynthesis in those areas filled. However, the effect would be temporary and less than significant.

(b) Suspension/ Filter Feeders

The project may temporarily affect suspension and filter feeders in those areas filled. However, the effect would be temporary and less than significant for the area.

(c) Sight Feeders

The project would temporarily affect sight feeders in those areas filled. However, the effect would be temporary and less than significant for the area.

(4) Actions Taken to Minimize Impacts (Subpart H)

Effects to the aquatic biota would be temporary and not significant in the area downstream of the stilling basin and swale. Therefore, no additional measures to minimize effects are needed for fill occurring there

d. Contaminant Determinations (consider items in Section 230.11(d))

The proposed project would not add contaminants to any nearby body of water. Best management practices to reduce the potential of accidental spills during construction are included in the EA/IS. The fill material for the sites would not be contaminated and would be tested for contaminants prior to placement.

e. Aquatic Ecosystem and Organism Determinations (use evaluation and testing Procedures in Subpart G, as appropriate)

(1) Effects on Plankton

Effects to plankton would be temporary and not significant, no additional measures to minimize effects are needed for fill occurring in the area.

(2) Effects on Benthos

Effects to the benthos would be temporary and not significant, no additional measures to minimize effects are needed for fill occurring in the area.

(3) Effects on Nekton

Effects to nekton would be temporary and not significant, no additional measures to minimize effects are needed for fill occurring in the area.

(4) Effects on aquatic Food Web (refer to Section 230.31)

There would be no adverse effects to the aquatic food web, or the plankton, benthic and nekton communities with the proposed project

(5) Effects on Special Aquatic Sites (discuss only those found in project area or disposal site)

(a) Sanctuaries and Refuges (refer to section 230.40)

There would be no adverse effects to sanctuaries or refuges with the proposed project.

(b) Wetlands (refer to section 230.41)

No wetlands would be filled.

(c) Mud Flats (refer to Section 230.42)

There would be no adverse effects to mud flats with the proposed project.

(d) Vegetated Shallows (refer to Section 230.43)

There would be no adverse effects to vegetated shallows with the proposed project.

(e) Coral Reefs (refer to Section 230.44)

There would be no adverse effects to coral reefs with the proposed project.

(f) Riffle and Pool Complexes (refer to section 230.45)

There would be no adverse effects to riffle and pool complexes.

(6) Threatened and Endangered Species (refer to Section 230.30)

The proposed action at the Pocket erosion control sites is likely to adversely affect the following listed species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Delta smelt, valley elderberry longhorn beetle, and green sturgeon. Project effects also include alteration of the designated critical habitat of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and Delta smelt.

Construction effects may include localized disturbance or displacement of adult and juvenile salmon, steelhead, and sturgeon from noise, suspended sediment, and turbidity generated during in-water construction activities. The potential also exists for injury or mortality of juvenile salmonids and other fish species that may not be able to readily move away from channel or nearshore areas directly affected by construction activities. The potential for adverse effects will be minimized by restricting in-water activities to the period July 1-November 30 and

implementing the proposed minimization and avoidance measures for each species as stated in the EA/IS.

(7) Other Wildlife (refer to Section 230.32)

Wildlife effects associated with the construction are expected to be temporary. Generally, wildlife species that use the areas around project area are mobile species that would leave the area during construction and return when construction is completed. Therefore, the proposed project would not have any significant adverse effects to wildlife over what was described in the EA/IS.

(8) Actions to Minimize Impacts (refer to Subpart H)

There would be no additional significant adverse effects to wildlife due to the construction. Therefore, there would be no minimization measures needed.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination (consider factors in section 230.11(f)(2))

Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards
(present the standards and rationale for compliance or non-compliance with each standard)

No water quality or effluent standards would be violated either during or after construction of the dike or the road raising.

(3) Potential Effects on Human Use Characteristics

The proposed project would not have any significant adverse effects to municipal and private water supply, recreational and commercial fisheries, or water-related recreation. There would be no national and historic monuments, parks, seashores, wilderness areas, research sites or similar preserves affected by the proposed project.

g. Determination of Cumulative Effects on the Aquatic Ecosystem
(consider requirements in Section 230.11(g))

The proposed project would not have any significant cumulative effects on the aquatic ecosystem. The proposed project would result in the creation of approximately 3.0 acres of additional riparian habitat and the addition of 1,177 linear feet of IWM, an increase of the base line for listed salmonids a key indicator species of river health. Cumulative effects on the aquatic should be considered beneficial.

h. Determination of Secondary Effects on the Aquatic Ecosystem
(consider requirements in Section 230.11(h))

The proposed project would not have any secondary effects on the aquatic ecosystem. The proposed project would result in the creation of approximately 3.0 acres of additional riparian habitat and the addition of 1,177 linear feet of IWM, an increase of the base line for listed salmonids a key indicator species of river health. Any secondary effects on the aquatic should be considered beneficial.

III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation

No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Impact on the Aquatic Ecosystem There were no alternatives identified that would have significantly less adverse effects on the aquatic ecosystem than the proposed alternative.

Summary

c. Compliance with Applicable State Water Quality Standards and
d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act

State water quality standards would not be violated. The proposed action would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act (ESA) of 1973

Consultation with USFWS and NOAA Fisheries was initiated on February 16, 2006.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

Not applicable.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

The proposed project would not cause significant adverse effect on human health and welfare, including municipal and private water supplies, recreation and commercial fishing. Construction activities would affect benthic communities and plankton. There would be temporary adverse effects to fish, shellfish, wildlife or special aquatic sites. The proposed project would not significantly affect recreation or economic values. Temporary effects to esthetics would occur during construction.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

i. On the Basis of the Guidelines, the Proposed Disposal Site(s) for the discharge of fill material complies with the requirements of these guidelines.

Appropriate and practicable steps to minimize potential adverse effects of discharge and fill on the aquatic ecosystem include: placing fill material only where it is needed for the proposed project and confining it to the smallest practicable area. The areas disturbed by construction would be returned as close as possible to pre-project conditions where practicable.

On the basis of the guidelines, the proposed project is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effect on the aquatic ecosystem.

Appendix E. Air Quality Emissions Data

Road Construction Emissions Model, Version 5.1							
Emission Estimates for ->		Sacramento River Bank Projection Project			Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	
Grubbing/Land Clearing	0	3	0	0	0	0	
Grading/Excavation	40	292	244	19	14	5	
Drainage/Utilities/Sub-Grade	0	5	0	0	0	0	
Paving	0	4	0	0	0	0	
Maximum (pounds/day)	40	292	244	19	14	5	
Total (tons/construction project)	1	6	6	0	0	0	<-tons
Notes: Project Start Year ->	2005						
Project Length (months) ->	4						
Total Project Area (acres) ->	10						
Maximum Area Disturbed/Day (acres) ->	1						
Total Soil Imported/Exported (yd ³ /day)->	725						
PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.							
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.							
Emission Estimates for ->		Sacramento River Bank Projection Project			Exhaust	Fugitive Dust	
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	
Grubbing/Land Clearing	0	2	0	0	0	0	
Grading/Excavation	18	133	111	8	6	2	
Drainage/Utilities/Sub-Grade	0	2	0	0	0	0	
Paving	0	2	0	0	0	0	
Maximum (kilograms/day)	18	133	111	8	6	2	
Total (megagrams/construction project)	1	6	5	0	0	0	<-megagrams
Notes: Project Start Year ->	2005						
Project Length (months) ->	2						
Total Project Area (hectares) ->	4						
Maximum Area Disturbed/Day (hectares) ->	0						
Total Soil Imported/Exported (meters ³ /day)->	554						
PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.							
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.							

APPENDIX F

Environmental Checklist Form

1. Project title: **SACRAMENTO RIVER BANK PROTECTION PROJECT (SRBPP)
POCKET AREA EROSION SITES, SACRAMENTO CALIFORNIA**

2. Lead agency name and address:

The Reclamation Board

3310 El Camino Avenue
Room LL40
Sacramento, CA

Mailing Address:
P. O. Box 942836
Sacramento, CA 94236

3. Contact person and phone number:
Deborah Condon, Staff Environmental Scientist
Department of Water Resources DFM
(916) 574-0371, Dcondon@water.ca.gov

4. Project location:
Eight erosion sites along the left bank of the Sacramento River on the waterside of the Sacramento River Flood Control System levee at River Mile (RM) 49.6L, 49.9L, 50.2L, 50.4L, 50.8L, 51.5L, 52.4L and RM 53.1L within a 3.5 mile river reach bounded by Sutterville Road on the North and Freeport Boulevard on the south. The project area is located in Sacramento County in the southern portion of the City of Sacramento and adjacent to the Pocket Area neighborhood.

5. Project sponsor's name and address:
The project is jointly sponsored through the partnership under the Sacramento River Bank Protection Project by The State Reclamation Board and the U.S. Army Corps of Engineers.

The Reclamation Board

3310 El Camino Avenue, Room LL40
Sacramento, CA

Mailing Address:
Project
P. O. Box 942836

U.S. Army Corps of Engineers

1325 J Street
Sacramento, CA 95814

Attn: Sacramento River Bank Protection

Sacramento, CA 94236

6. General plan designation: Open Space, Park
7. Zoning: (F) Flood Zone
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

Bank protection measures to be implemented at the eight erosion sites would include (1) protecting the toe of the bank with rock revetment both below and above the mean summer water level (MSWL) (2) placing one foot of soil fill on the revetment at elevations above the MSWL, (3) placing additional and preserving in-place existing in-stream wood material (IWM) clusters for fish habitat, and (4) planting pole and container plants to stabilize the bank and to provide riparian habitat and potential shade.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The bank protection sites are bounded by the Sacramento River to the west, the levees of the Sacramento River Flood Control System to the east. The residential community of the Pocket Area of Sacramento is located on the landside of the levee. On the landside, Garcia Bend Park is just downstream of the southern limit of the project and Seymore Park near the up stream limits of the project.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)
US Army Corps of Engineers (partner under the Sacramento River Bank Protection Project) , State Lands Commission, U.S Fish and Wildlife Service, NOAA Fisheries, Regional Water Quality Control Board, Air Resources Board, State Office of Historic Preservation, CalTrans,

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture Resources	<input checked="" type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources	<input type="checkbox"/> Geology /Soils
<input type="checkbox"/> Hazards & Hazardous Materials	<input checked="" type="checkbox"/> Hydrology / Water Quality	<input type="checkbox"/> Land Use / Planning
<input type="checkbox"/> Mineral Resources	<input checked="" type="checkbox"/> Noise	<input type="checkbox"/> Population / Housing
<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Transportation/Traffic
Utilities / Service Systems	Mandatory Findings of Significance	

DRAFT

☐☐

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Signature

Date

EVALUATION OF ENVIRONMENTAL IMPACTS: **SEE ATTACHED MND DOCUMENT**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>IV. BIOLOGICAL RESOURCES -- Would the project:</p>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
the California Department of Fish and Game or US Fish and Wildlife Service?				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
cemeteries?				
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS B Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
sources of polluted runoff?				
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
value to the region and the residents of the state?				<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. NOISE B Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. POPULATION AND HOUSING --

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIV. RECREATION --

a) Would the project increase the use of existing neighborhood and regional parks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS B Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project=s projected demand in addition to the provider=s existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project=s solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>